

**ANNUAL REPORT**  
**7/04 - 6/05**

## TABLE OF CONTENTS

## Page

Director's Statement	3
I. Organization and Administration	
A. Administration	6
B. Executive Committee	6
II. Research	
A. Current Research Programs	6
B. Publications	6
C. Public Talks and Colloquia	7
D. Summaries of Significant Findings	8
III. Graduate Training	
A. Ph.D. and MA Students	19
B. Graduate Advisory Council	19
C. Research Seminars	19
D. Graduate Emphasis	20
IV. Communication	
A. Conferences	21
B. Conferences Organized by IMBS Members	22
C. Future Conferences	24
D. Visitors	24
E. Colloquia	25
V. Budget	
A. Appropriations and Expenditures	30
B. Extramural Funding Activity	31
VI. Appendices	
A. Current Faculty Members	35
B. Scientific Publications	40
C. IMBS Technical Reports	57
D. Colloquia and Conferences of IMBS Members	59
E. Faculty Awards/Achievements	73
F. Graduate Students Affiliated with the IMBS	76
G. Conferences and Workshops	78
H. Visitor Letters	86

## Director's Statement

Summer, 2005

Dear Colleagues,

As it will be evident from this annual report, the 2004-05 academic year has been a delightfully active one for IMBS. We ran seven conferences that attracted international participation, covered a wide variety of topics in our well-attended weekly colloquia, better involved our graduate students in IMBS research and academic activities, involved the regional academic community in our research activities, held several weekly discussion sessions on a variety of research topics, and hosted several visitors. But, without question, two of the highlights of the year involved the founding director of our institute—Duncan Luce.

The absolute highlight for our institute occurred in March of this year when Duncan Luce received, in a ceremony presided over by the president of the United States, the national “Medal of Science!” Pictures of the UCI ceremony, which was hosted by the Dean of the School of Social Sciences and the IMBS to honor Luce, can be found on <http://www.imbs.uci.edu>.

This “Medal of Science” award—the highest possible in the United States—adds validation and support to the IMBS mission, which is to pioneer how to use the muscle power of mathematics and mathematical reasoning to uncover the myriad of mysteries coming from the social and behavioral sciences. As history has shown with the physical sciences, in order to understand and uncover those puzzling mysteries from the social and behavioral sciences, we must expect that it will take a carefully developed interaction between mathematics and these areas.

This is not a quick process; it is a slow and deliberate one that involves hard work—of developing theory and connecting it with data—to find the correct combinations. But the potential rewards are high. In this quest, UCI through the IMBS is taking an international leading role. In fact, the IMBS is the only research institute in the world dedicated toward this objective, and we take our obligation seriously. Indeed, I invite you to read Section D of this report that briefly describes some of the impressive results that have been discovered by IMBS members this year, and the later sections listing the wide variety of talks and published papers.

A second highlight for the year involved a conference on “Individual Decision- Making” that was held in honor of Duncan Luce’s 80<sup>th</sup> birthday. As jokingly mentioned in the ceremonies held before the formal conference started, one reason it was appropriate to honor his 80<sup>th</sup> birthday is that he produces about the amount of research and papers as two 40 year olds. During the introductory ceremonies and talks, arranged by Louis Narens, which described the influence of a portion of his books and his recent papers, it appears that this description may have been conservative.

As a preview of some of what you will find in this report:

- IMBS organized several well-received conferences and mini-conferences where the topics ranged from cognitive psychometrics, to mathematical evaluations of techniques used to fight crime, individual decision making, and even the mysteries (and applications to data and psychology) of four-dimensional worlds! Brief descriptions of each conference as well as the agenda are included.

- We enjoyed a full, active, and varied colloquium series throughout the year with topics touching the interests of most of our members—and even one that honored the many accomplishments of Jean Claude Falmagne on his 70<sup>th</sup> birthday. Because of the success of our social hour in creating an informal atmosphere where colleagues from different disciplines can discuss, we continued it this year. It follows immediately after each of our weekly colloquia. A new feature is that each week the IMBS affiliated graduate students have a private meeting with the speaker of the week. This has proved to be successful.
- IMBS is expanding our membership: we welcome Professors Bill Branch from Economics and Jack Xin from Mathematics. Also, we are encouraging affiliate members from other universities to become more active.
- Janet Phelps continues to revitalize both our webpage (check it out at <http://www.imbs.uci.edu>) and our bulletin board. If you have suggestions, please let us know.
- In January, 2004, the IMBS created a new focus research group on “Social Dynamics and Evolution,” chaired by Douglas White. As their activities described in this report show, they are developing impressively
- With the guidance and efforts of Louis Narens, our director of graduate studies, and our new Graduate Advisory Council, our graduate students are becoming more involved in IMBS research activities. This includes their annual graduate student conference, where the more advanced students present their research findings, the one-day fall conference, where students supported by IMBS for summer research outline their findings, and the private meeting they have with our weekly colloquium speaker. Our new program to recruit graduate students is having success.
- As you will see from the report, IMBS members conducted and/or sponsored several weekly discussion groups.
- The IMBS is delighted by the recognition received by our members! By glancing through Appendix F, among prestigious editorships, committee memberships, and other recognitions, you will learn some of the honors received by our members. As just a sample, in addition to Duncan Luce receiving the Medal of Science, Jean-Claude Falmagne received an honorary doctorate, Bernie Grofman received the UCI Distinguished Faculty Research Award, Marek Kaminski’s book *Games Prisoners Play* earned an award, Robin Keller was named an INFORMS Fellow, Natasha Komarova was awarded a Sloan Fellowship, George Sperling won the Helmholtz Award, Mark Steyvers was elected a Fellow and received an Early Investigator Award from the Society for Experimental Psychologists, Doug White received an award for an outstanding research publication, etc., etc.

During the year, we continued the IMBS theme where we attempt to play a valued role in serving as a catalyst for the research activity of IMBS members. We can do this by promoting what you do, by bringing in speakers and visitors, by helping on grant proposals, by forming focused research or discussion groups—on a temporary or more permanent basis—or running a weekend interdisciplinary conference. As an illustration, this last year Charles Chubb and Robin Keller ran an exploratory weekly discussion group entitled “Vision and Decision” to discover what is common between these two areas.

Let me extend an open invitation: if there is a research topic you wish to explore, or if you want to determine whether something can be with colleagues from other disciplines, or if several of you are interested in some research activity, or if ..., please drop by to discuss this. Something can be done.

Sincerely

Don Saari  
IMBS Director

## I. ORGANIZATION AND ADMINISTRATION

### A. Administration

The Director of the Institute for Mathematical Behavioral Sciences is Professor Donald G. Saari. He reports both to the Dean of the School of Social Sciences and to the Vice-Chancellor for Research and Graduate Studies. An Executive Committee for consultation and decision-making regarding the day-to-day operation of the Institute assists the Director. (Section B below).

The staff of the Director's office consists of one Administrator and a part-time Administrative Assistant. Presently, some bookkeeping and personnel matters are being taken care of by the School of Social Sciences.

Director:	Donald G. Saari, 2003-Present
Previous Directors:	R. Duncan Luce, Founding Director, 1989-1998 William H. Batchelder, 1999-2003
Graduate Advisor:	Louis Narens
Administrator:	Janet Phelps
Administrative Assistant:	Grace Lee

### B. Executive Committee

Michael D'Zmura, Professor of Cognitive Sciences  
Bernard Grofman, Professor of Political Science  
Katherine Faust, Professor of Sociology  
L. Robin Keller, Professor, Operations and Decisions Technologies  
Mark Machina, Professor of Economics, UC San Diego  
Stergios Skaperdas, Professor of Economics  
Brian Skyrms, Professor of Philosophy

## II. RESEARCH

### A. Current Research Programs

The members of the Institute for Mathematical Behavioral Sciences (IMBS) and their research interests are listed in Appendix A.

As in previous reports the IMBS is partitioned into five research clusters. These are listed below and are informal intellectual groupings, not highly formal structures.

**1. *Measurement Theory, Foundational Issues, and Scaling Models:*** Antonelli, Barrett, Batchelder, Bennett, Burton, Falmagne, Luce, Maddy, Narens, Romney, and Skyrms

**2. *Statistical Modeling:***

- ***Cognitive:*** Baldi, Batchelder, Doshier, Falmagne, Indow, Iverson, Riefer, Romney, Smyth, Steyvers, and Yellott
- ***Economic:*** Brownstone, DeVany, Poirier, Tobias, Saari, and Small
- ***Sociological/Anthropological:*** Butts, Faust, Freeman, White

3. *Individual Decision Making*: Birnbaum, Keller, Luce, Machina, Narens, and Saari

4. *Perception and Psychophysics*:

- *Vision*: Braunstein, Cicerone, Chubb, deFigueiredo, D’Zmura, Hoffman, Indow, Iverson, Romney, Sperling, Srinivasan, Yellott and Zhao
- *Psychophysics and Response Times*: Brown, Falmagne, Iverson, Luce, Narens, and Yellott

5. *Social and Economic Phenomena*:

- *Economics and Game Theory*: Branch, Brownstone, Burton, Garfinkel, Komarova, Kopylov, McBride, Poirier, Skaperdas, Skyrms, Saari, Small, and Tobias
- *Public Choice*: Cohen, Glazer, Grofman, Kaminski, Keller, McGann, and Uhlaner
- *Social Networks*: Batchelder, Butts, Boyd, Faust, Freeman, Romney, and White

## **B. Publications**

The members who have replied report a total 192 journal publications (published or in press) for the current academic year. These are listed in Appendix B.

The IMBS has a technical report series that is available to all members and qualified graduate students who are submitting a paper to a refereed journal or book. The series editor has been Donald Saari. Appendix C lists the 11 technical reports issued during the academic year. Most papers can be found on the Insitute’s web site at [www.imbs.uci.edu](http://www.imbs.uci.edu).

## **C. Public Talks and Colloquia**

IMBS members actively participated in numerous off-campus research seminars and conferences. The members who replied gave a total of 182 talks listed in Appendix D. Their awards and achievements for this year can be found in Appendix E.

## D. Summaries of Significant Findings

### Measurement Theory, Foundational Issues, and Scaling Models

#### Statistical Modeling

##### **William Batchelder**

Mathematical psychology and psychometrics are the main fields in psychology that include people with advanced training in mathematics and statistics. Mathematical psychologists create formal models that are designed to represent basic theory about normal human cognition, whereas, psychometricians design statistical models to measure individual differences in psychologically interesting quantities. Historically, these two fields have had very limited interaction. My colleagues and I are pushing for the creation of a new area called cognitive psychometrics. The goal is to develop simple and approximate cognitive models into useful psychometric measurement tools in such areas as psychological assessment and cognitive neuroscience. The early signs are that this may result in a fertile area of interaction between mathematical psychologists and psychometricians.

##### **deFigueiredo**

Computational Intelligence is at the core of some of the key emerging information technologies. Professor de Figueiredo's research is concerned with the development of computational-intelligence-based techniques for detection, classification, interpretation, and understanding of complex events in data, as well as for the modeling, identification, and design of the processes of adaptation, learning (with and without supervision), and evolution in systems. Applications have been in signal processing, wireless communications, and biomedical image data analysis.

##### **Louis Narens**

During the past year most of my research has concentrated on investigating the role of invariance in science, particularly in psychophysics. This has led to a journal article, "Symmetry, Direct Measurement, and Torgerson's Conjecture," to be published in *Journal of mathematical Psychology*, and a completed book manuscript, "Introduction to the Theories of Measurement and Meaningfulness". The book integrates advances in the foundations of measurement made during the last 10 years, and emphasizes the role of invariance in measurement theory and in making scientific inferences.

During the past year I have also spent considerable time revising another book manuscript of mine, "Qualitative and Subjective Probability", which should be ready to send to a publisher in early Fall.

I have also engaged in joint interdisciplinary research with other Institute members. In particular, Don Saari and I have been developing a theoretical model that shows the concept of hue in color theory has a higher dimensional structure than accepted by color scientists. I have also formed a small research group of color, mathematical, cognitive, and philosophy of science researchers (Jameson, Kormarov, Narens, Zollman) to investigate via methods of evolutionary game theory the evolution of category names, particularly color naming.



## **Dale Poirier**

Over this past year I been working with Professor Gary Koop of the University of Leicester and Justin Tobias of Iowa State University on a text *Bayesian Exercises* for the *Econometrics Exercises Series*, edited by K. Abadir, J. Magnus, and P. C. B. Phillips, published by Cambridge University Press. I have also written the draft, "A Statistical Model of Intifada Fatalities," with Ivan Jeliazkov of UCI, which models the daily fatality counts of Israelis and Palestinians during the ongoing Intifada. This paper will be presented at the Econometric Society World Congress to be held in London in August, 2005.

## **Smyth**

One area of increasing interest in my research group in the past year has been the analysis of large email data sets. We have 2 large email data sets that we are using as test beds for our research, each containing on the order of 1 million emails involving several thousand individuals over a roughly 2-year period. Research questions of interest for such data are, for example: how do email networks grow and evolve over time? Can one determine the most important individuals in an organization just by looking the email graph of who sends email to who? (preliminary work indicates that the answer appears to be yes) Can we summarize and predict the "typical topics" that people write about in email? To look at the latter question we have continued our collaboration with Professor Mark Steyvers (Department of Cognitive Sciences and IMBS) on developing statistical models for large text data sets (Rosen-Zvi et al, 2004; Steyvers et al., 2004). Possible applications of this research include algorithms to assist in forensic analysis of large email data sets in legal cases and tools that allow us to better understand the social aspects of email communication

## **Decision Making**

### **Jeffrey Barrett**

This year I worked on ways of solving the Curry Paradox. This is a paradox that occurs if one allows for unrestricted reference in a language and supposes that (if A then B) and (A) implies (B). This second assumption is a rule of inference called MP. Since both of these assumptions seem to be entirely natural, it is not at all clear at first what should be given up in order to avoid contradiction. Traditionally, most people have opted to restrict reference. I now believe that there is very good reason to give up MP as an unrestricted rule of logical inference.

### **Michael Birnbaum**

This last year, I have completed a review article that summarizes the case against prospect theories (original and cumulative). These are theories that were intended to describe how people make decisions and were recognized in the 2002 Nobel Prize in Economics. However, I have studied eleven testable implications of these theories and conducted experiments to test these implications. This body of research leads to the conclusion that these theories are not accurate descriptions of the process by which people make decisions.

Aside from the research in decision making, I have been working in the new field of Internet-Based

Behavioral Research. In the last year, I have held an Advanced Training Institute, supported by NSF, that teaches researchers how to conduct such research.

### **Scott Brown**

I have been working on how people detect changes in their environment. Change detection is very important for everyday life, but the processes underlying it are not well understood. Statistical literature includes a great deal of work on how to decide where changes points happened AFTER all the data are in, but this is not what's important for humans: we need to watch for changes AS the data come in (e.g. in stock prices, or illness symptoms). With Mark Steyvers, I have developed experiments to measure people's abilities to detect changes, and we have developed models to describe how this works.

### **Robin Keller**

In “Modeling the Effects of Reference Point Dependence on Supplier Selection,” by Tianjun Feng and L. Robin Keller, the primary goal is to develop an analytical framework for a corporate buyer to understand the impact of reference level and loss aversion on supplier selection and make smart choices among her suppliers. A mathematical reference-dependent model is proposed to explore the effects on supplier selection by evaluating the suppliers relative to multi-attribute reference points characterized by price and delivery time guarantee.

### **Natalia Komarova**

Together with D.Wodarz I have developed a method that can help doctors choose the best combination of drugs for fighting cancer, a development that may lead to more effective treatment strategies. The method is based on a mathematical model that determines when a cancer becomes drug-resistant during therapy. It does this by estimating the probability of finding drug-resistant mutant cells at different stages of cancer progression and examining the fate of individual mutant colonies during therapy. It then pinpoints under what circumstances these mutant cells become a problem and the therapy stops being effective. The finding will help physicians determine when a combination of drugs will be more effective in fighting a cancer.

### **Vladimir Lefebvre**

I have worked on the development of a theoretical model which predicts the existence of three patterns of subjects' behavior in an experimental chamber with concurrent schedules of reinforcements. Two of these patterns were known earlier and the third one is new. The model is based on the assumption that an organism is a system with internality and that the alternatives are polarized for the subject: one of them plays the role of the positive pole and the other that of the negative pole. Polarization may be independent of the alternatives richness with food. I have demonstrated that the generalized matching law can be regarded as an empirical approximation of the theoretical equation which connects the systems internal variable with the influence of the environment and probabilities of alternatives choosing.

### **R. Duncan Luce**

During the past academic year my focus was on two major projects with various offshoots. One was the discovery, brought to my attention by the mathematician János Aczél, of a then largely unknown paper

by Meginniss (1976) on the utility of gambling. This evasive topic was recognized at the beginnings of modern utility theory in the mid 20<sup>th</sup> century as being quite difficult to axiomatize. And it has proved so. Meginniss' interesting representation was, in its simplest version, expected utility plus a constant times the Shannon entropy of the underlying probabilities. But his assumptions seemed very restrictive and limited to the study of risk and not uncertainty. In Ng, Luce, & Marley, about to be submitted to a mathematics journal, we maintain much of Meginniss' approach, but severely weaken his restrictive assumptions and make very clear exactly what his several assumptions bring into play. More interesting to me is the generalization to alternatives under uncertainty, given by Luce, Ng, Marley, and Aczél and soon to be submitted to an economics journal. There one begins to see clearly which behavioral axioms are involved, many of them being ones studied earlier. It is essential to omit the usual assumption of idempotence, that an uncertain alternative with the same consequence no matter which event occurs is indifferent to that consequence by itself. This has traditionally been a property of virtually every theory, but that is no longer invoked.

The other effort, with Ragnar Steingrímsson, has focused on my proposed theory of loudness, previously favorably evaluated empirically, but developing and testing mathematical forms for both the psychophysical function and the number distortion function that exist as free functions in the representation. Behavioral criteria are developed for several different functions, others are being worked on, and further tests are occurring. Such auditory phenomena as the famous Fechner paradox, the time-order error, and sequential effects in magnitude estimation have a simple explanations within this theory.

### **Donald Saari**

Part of the year was devoted toward completing a book (that came out in May) on the non-IMBS research topics concerning collisions of N-bodies and some mathematical problems resulting from the ring structure of Saturn. One of my IMBS research topics emphasized an analysis of the Luce axioms in terms of the mathematical structures that I discovered through my geometric analysis of voting rules. As an illustration of new conclusions (the paper appeared in JMP in late spring), one of the puzzles advanced by Luce in his 1959 book involved the mystery where determining a ranking from "best first" differed from determining a ranking from "worse first." While intuitively both approaches would seem to be the same, the explanation turned out to be that the two approaches use different information from the profile. Another IMBS result comes from my work in decision theory and it emphasizes Sen's Theorem. This seminal result, which was cited as part of his 1999 Nobel Prize, asserts that there is a fundamental conflict between societal efficiency and the rights of individuals to make personal decisions. A deeper analysis proved that one of Sen's assumptions prevented another one of his assumptions from being used. Of more interest, this research (with Petron from Caen, France, and it will appear in ET) shows that rather than an analysis of individual rights, Sen's Theorem actually identifies dysfunctional societal settings.

### **Perception and Psychophysics**

### **Mike Braunstein**

It has been proposed that our perception of where an object is located in a three-dimensional scene depends on where it contacts the ground in an image of the scene ("optical contact"), such as the projection on the retina. Using motion pictures of real scenes into which computer generated objects

and shadows were inserted, we examined the integration of optical contact information with three other variables that affect scene perception--motion, occlusion and shadow. Scene position from optical contact was not easily overcome by contradictory information from motion. It was modified by information from occlusion and was dominated by information from shadow. This means that an object floating above the ground will not be seen in its correct position even if its position is indicated by motion, will be seen closer to its correct position if it occludes other objects consistent with its correct position, and will be seen in its correct position if a shadow is present on the ground under the object. These findings show how different sources of information are integrated in the perception of a three-dimensional scene.

### **Michael D'Zmura**

Cognitive scientists have emphasized, in recent years, the importance of our embodiment in the world for skill acquisition and cognitive processing. In mathematical education, this emphasis has led to exploration of the way people use their bodies to learn and to exploit mathematical concepts. Following this line of thinking, we reasoned that immersion in an interactive 4D virtual environment (VE) might be a better way for most people to learn about 4D space and objects than gazing at diagrams, pictures or rotating hypercubes. We developed software for presenting VEs with four spatial dimensions in a manner similar to that in which 3D VEs are presented in action games. In a first experiment, we used the software to test whether people can learn to move efficiently from one location to some remote location in a rich, immersive 4D VE. All participants in this experiment improved their search and navigation skills dramatically. Yet it was clear that they used landmarks to select efficient routes, a navigation technique common in the real world ("turn left at the Shell station"), rather than some high-dimensional map of the environment. In a second experiment, we used non-immersive, maze-like VEs to test whether people can learn to point towards an unseen, remote location in 4D space and to estimate straight-line distance. Ability to perform such tasks is often taken as evidence, when working in 2D and 3D environments, for use of a more global, map-like representation of space. Results depended on the individual participants. All improved their performance in what are initially extremely difficult tasks, yet at the end of training only some were able to point immediately and accurately towards a remote location.

### **Donald Hoffman**

a) The possibility of spectrum inversion has been debated since it was raised by Locke in 1690, and is still discussed because of its implications for functionalist theories of conscious experience (e.g., Palmer, 1999). The "Scrambling Theorem" paper provides a mathematical formulation of the question of spectrum inversion, and proves that such inversions, and indeed objective scramblings of color in general, are logically possible. Symmetries in the structure of color space are, for purposes of the proof, irrelevant. The proof entails that conscious experiences are not identical with functional relations. It leaves open the empirical possibility that functional relations might, at least in part, be causally responsible for generating conscious experiences. Functionalists can propose causal accounts that meet the normal standards for scientific theories, including numerical precision and novel prediction; they cannot, however, claim that, because functional relationships and conscious experiences are identical, any attempt to construct such causal theories entails a category error.

b) According to current theories of perception, our visual experiences match or approximate the true properties of an objective physical world. Ecological optics claims this match is direct, unmediated by

psychological or computational processes. Computational theories claim that this match is indirect, the result of sophisticated algorithms that instantiate, e.g., the inferential methods of Bayesian estimation. The assumption of all of these theories that there is an objective, i.e., mind independent, physical world has proved incapable, so far, of yielding a scientific theory for the mind-body problem, a scientific theory of the relationship between conscious experiences and the brain. Therefore I explore, instead, the possibility that sensory experiences constitute a multimodal user interface (MUI) between the perceiver and an objective world, an interface useful precisely because it does not match, approximate, or resemble that world. I also explore conscious realism, the ontological claim that the objective world itself is comprised entirely of conscious agents. Together, MUI theory and conscious realism provide a straightforward solution to the mind-body problem, and entail epiphenomenalism: physical objects, such as quarks and brains and stars, are constructed by conscious agents, but such physical objects have no causal powers.

### **Tarow Indow**

Since the publication of “*The Global Structure of Visual Space*” from World Scientific Publishing Co. (reported last year), I came back to another problem with which I have been concerned for many years. That is the exploration of the Munsell Color System. The collaboration with Kimball Romney, a member of IMBS, (reported in 2003) was resumed. The Munsell Color System is a collection of color chips standardized by the Optical Society of America. Chips are 3-dimensionally arranged in terms of Hue(H), Chroma(C, saturation), and Value(V, lightness). We published in 2003 three articles on the singular value decomposition analysis of spectral reflectance curves of Munsell chips. This year, I tried to relate these results with my own studies of quantifying these perceptual attributes. For example, the degrees of redness and yellowness people see in an orange color chip are quantitatively related to the basic variables to represent its spectral reflectance. With 1269 Munsell chips, the relationship of this kind was established for 4 principal hue components, red, yellow, green, and blue.

### **Geoff Iverson**

I continue to work in various areas, in color theory, in psychophysical theory, and in statistical theory. Talks and publications listed in other parts of this Annual Report reflect these research interests.

### **Ramesh Srinivasan**

We investigated temporal properties of perception and demonstrated an integration window of duration 200 ms in the visual system. In our experiment (Srinivasan and Perovic, 2005), two different images are flickered out of phase to the two eyes. If the flickering images repeat in each eye within the integration window, the two images are streamed into distinct flickers. The subject experiences rivalry between flickers; that is, they perceive only one flicker at a time and spontaneously alternate consciousness between flickers. We further demonstrate with MEG recordings that occipital and midline frontal cortex phase-lock to the perceived flicker, but robust responses in parietal cortex are not influenced by consciousness. This distinction between occipital and parietal cortex was also found in an attention experiment. Parietal cortex responses to flicker can go up when the flicker is not attended, if attention is directed to foveal locations (Ding et al., 2005).

### **Hong-kai Zhao**

This year my research is mainly focused on two areas: (1) developing efficient numerical schemes for Hamilton-Jacobi equations, a class of hyperbolic nonlinear partial differential equations that have important applications in optimal control, game theory, geometric optics and computer vision. We developed an iterative method of optimal complexity. (2) design direct and robust imaging algorithms using time reversal of waves, which has applications in medical imaging, radar system and nondestructive testing.

### *Social and Economic Phenomena*

#### **(a) Economics and Game Theory**

##### **David Brownstone**

Most current estimates of the value of new transportation or environmental improvements are based on survey respondents' choices between hypothetical alternatives. Using new data we collected from the I15 toll road facility in San Diego, Arindam Ghosh, Tom Golob, and I have been comparing results based on commuters' actual and hypothetical choices. We find that the hypothetical choices yield much lower estimates of the critical value-of-time saved from taking the toll facility. Most importantly, we show that neither sample selection (the tendency for commuters with high value of time to always choose the toll road) or model specification bias can explain these differences. Recent work with Kenneth Small has replicated this finding from different studies of commuter behavior on the SR 91 toll road connecting Riverside and Orange Counties. This work will clearly have an impact in transportation economics and environmental economics where responses to hypothetical questions are treated as if they were responses to actual market choices.

##### **Michelle Garfinkel**

Many decisions are made collectively. Some examples include Congress, the board of directors at a corporation, and the Federal Reserve Bank. The standard explanations for committee decision making is that they allow for representation, and for better decisions. I identify two additional benefits. First, when some firms use committees, other committees may also want to because thereby decisions across firms are correlated, increasing the profits of each firm. Second, an increase in the number of decision makers allows more people to learn what the organization's decision will likely be, and so can make the policy adopted more effective. This is especially likely when effective policy requires others to invest in anticipation of the policy continuing.

##### **Igor Kopylov**

During this academic year, I have finished two research papers titled "A Parametric Model of Ambiguity Aversion" and "Temptations in General Settings". The former paper provides surprisingly simple axiomatic foundations for a convenient parametric model of choice under uncertainty. According to this model, the utility of any uncertain prospect should be evaluated via a mixture of the decision maker's unique belief  $p^*$  and the least favorable scenario that may appear reasonable to her. The weight  $\epsilon$  that she puts on this unfavorable scenario can be uniquely derived from her preference and is interpretable as an index of ambiguity aversion. The characterization of this model is based on a highly intuitive notion of hedging against ambiguity.

I have also started a joint research project with M. McBride. We propose an experimental study of choice behavior under a special type of uncertainty that results from imperfect recall or recognition. Such experiments can provide contributions to both decision theory and psychology. In particular, it should be possible to study the relation between memory and ambiguity.

### **Michael McBride**

While economic thinking and formal models have crept into the study of religion over the last few decades, very little work has used game theory to formally modeled religious competition between denominations. In one paper, I use game theory to examine how economic growth produces potentially counteracting effects on religious vitality. Specifically, I show that economic growth can produce changes in supply and demand that, depending on which effect dominates, may lead to religious decline or increased vitality. These findings help us to understand why economic growth in many countries has not been followed by religious decline. In a second game-theoretic paper, I examine the religious pluralism-religious vitality relationship. I show why prior empirical studies of the pluralism-vitality relationship do not properly control for the supply and demand of religious competition. I also explain why a negative correlation between pluralism and participation is likely to be found within a country, while a positive correlation will be found across countries—a finding that reconciles earlier, apparently contradictory, studies. The more general contribution of this work is to show how game theoretic models of religious competition provide new insights into our understanding of religion.

### **Ken Small**

Kenneth Small, along with a former graduate student and colleague at the Brookings Institution, completed a study of travel behavior on an express toll lane in Orange County, California. They applied several recently developed tools that enable them to combine survey data sets, including those asking about actual behavior and those asking about choices in hypothetical situations. The study measures the willingness of travelers to trade off money payment for two aspects of travel: time savings and improvements in the certainty of travel time. It also measures how these tradeoffs vary randomly across the population. The authors find that motorists exhibit high values of travel time and reliability and substantial heterogeneity in those values. One implication is that road pricing policies designed to cater to such varying preferences can improve efficiency while appealing to a higher proportion of travelers.

### **(b) Public Choice**

#### **Bernard Grofman**

It is often claimed that race-based redistricting designed to create districts a majority of whose members were of a given racial or ethnic minority has led to the decline in Democratic voting strength in the United States Congress and elsewhere. The basic argument is that creating black or Hispanic majority seats leads to a concentration of Democratic supporters in a handful of districts, and the “bleaching” of neighboring districts in such a fashion as to make it more likely that Republicans will be able to win those districts. In forthcoming work, I show Democratic losses in the 1990s in the U.S. House of Representatives in the deep South can be explained only in part by racial gerrymandering. In addition, we must attribute much of the fault to the failure of Democratic leaders in the deep South to recognize realignment realities that were moving the South in a more Republican direction. In particular, Democratic leaders sought to protect the seats of more Democrat incumbents than Democrat voting

strength could sustain. This partisan greed gave rise to what I call “Dummymanders”, i.e. districting plans drawn by one political party whose consequences mimic those of partisan gerrymanders by the opposing party.

### **Anthony McGann**

Working with Eliora van der Hout (Ph.D Tilburg University, Netherlands), I demonstrate that proportionality in electoral systems follows axiomatically from the requirements of liberal equality. That is, if all individual voters are to be treated equally, the electoral system must be proportional. Arguments that proportional representation is "fair" are commonplace, but these arguments nearly always rest on fairness to political parties or social groups, or at least to people conceived as partisans or group members. Our proof is based solely on the equality of individuals. It thus refutes the argument made by the US Supreme Court (Vieth vs. Jubilirer 2004) amongst others, that the case for PR is inevitably based on group rights and not the equal protection of individuals. This result is under review, and is available as an IMBS working paper.

Working the Solomon Major (Stanford Ph.D), I create a model that suggests that the optimal targets for sanctions are third parties who are not particularly concerned with the issue that prompted the sanctions. The current conventional wisdom (the "smart sanctions") approach argues that economics sanctions should be targeted at the elites responsible for the policies that prompted the sanctions. However, such elites are likely to be highly invested in these policies. It will often be possible to generate more leverage by sanctioning powerful third party groups, who are relatively unconcerned with the policy. We illustrate this with the South African case, where the multinational business community was effectively targeted, even though it was mildly hostile to apartheid.

### **(c) Social Networks**

#### **Mike Burton**

We (Kim Romney, Carmella Moore, and myself) finished writing the paper “Language Families and Social Structure” that was described as a meetings paper last year. This paper is based on a correspondence analysis of a sample of 351 societies coded for 63 social structure traits. The 351 societies fall into a two-dimensional space that is interpreted as matricentric versus patricentric and unilineal versus bilateral. Almost all language families show significant clustering within that space, with most of them being characterized by 5 social structure patterns – unilineal, bilateral, patrilineal, patricentric, and matricentric. These findings show that the cultures of the world are organized into larger systems based on shared history, and that they have retained shared cultural concepts about kinship and gender over a period of several thousand years.

A second paper (James Egan, Karen Nero, and myself) in press in an edited volume discussed the roles of local and imported foods in the contemporary economy of the Micronesian society, Yap. We find that although all households are involved in wage labor, virtually all households still participate in local food production, that nearly 40% of the food entering households does so via gift exchange rather than through market purchase of home production, and that households that do not produce or purchase local foods have access to those foods through the exchange system.



## **Carter Butts**

The World Trade Center Disaster of September 11, 2001 has proven to be one of the most costly disasters in US history in terms of both lives and property. In the aftermath of this event, considerable effort has been made to learn from the successes and failures of the response process. In recent work, I (along with students Miruna Petrescu-Prahova and Remy Cross) have examined first responder radio communication networks at the WTC, with an eye to understanding the emergent properties of communication structures during emergency situations. Our work so far (as described in two IMBS technical reports) has uncovered a number of surprising findings. For instance, it appears that emergency communication networks among specialist responders (police, security personnel, etc.) are very similar in structure to those of non-specialists (e.g., maintenance personnel, elevator operators) at the WTC. Both have “tree-like,” hub-dominated structures in which a relatively small number of individuals perform the bulk of communication and coordination tasks. While individuals whose formal positions entail coordination (e.g., desk operators) are more likely to serve as hubs than are other individuals, the vast majority of responders in hub roles do not appear to have any such mandate. Rather, we find that most coordination at the WTC emerges from situational factors, with some responders acting to manage interactions among others with or without titular responsibility. Our research underscores the importance of emergent organization within crisis settings, for trained specialists and non-specialists alike: when disaster strikes, those on the scene work together to coordinate response activities. At the same time, the emergent character of the response process implies that effective communication systems must be flexible, and that planners must not assume that the most critical members of a communication network will be those with particular job descriptions. By revealing such aspects of responder communications at the WTC, we hope to contribute both to the scientific understanding of behavior during crisis situations, and to the design of communication systems which will reduce loss of life during future crisis events.

## **Douglas White**

Scholarly evaluation of four of White’s publications submitted or published the last year drew acclaim: the work with James Moody on the measurement and predictiveness of structural cohesion in social networks won the best paper award in the ASA’s Mathematical Sociology section; applications of these concepts, originally developed by White and Harary (2001), now in the context of a study of a Middle Eastern society appear in a book that was highly rated in reviews, and the American Journal of Sociology January 2005 edition featured a coauthored article applying these methods successfully to the biotechnical industry. The AJS editor regarded this study as sufficiently important to publish a full 80 pages, with six color pages, and also with a special auxiliary publication in html that constituted one of two articles in that issue that appear in the AJS electronic edition. The “predictive cohesion theory” that White has been developing and testing over the last few years has now been definitively accepted in the disciplinary core of sociology.

Corollary to the “predictive cohesion theory” work, and including the fourth item published from those submitted last academic year (which involved a set of algebraic findings about regularities in Australian societies that was picked up as a dataset and verified in a published MIT study of latent classes in relational data) were three articles that made new discoveries in the domain of kinship networks. Two publications in a French journal reported White’s development, with his working group in Paris, of how his “ring cohesion theory” (mathematizing the measurement of the *sources* of cohesion in cohesive social networks) implemented a full methodology, “marriage census graphs,” shown in six case studies

to have the potential to revolutionize the study of kinship and marriage as networks. Another paper, submitted this year, showed how this approach generated strong evidence for rethinking the basic concepts of what constitutes cognition (part of which is network-embedded) and what constitutes culture (again, network-embedded).

Further discoveries in these domains, from Middle Eastern social structure to networks of collaborative contracts among biotechnical organizations, had to do with discoveries aided by help from IMBS mathematical dynamicists and from Santa Fe Institute physicists. A simulation model for investigating the occurrence of scale-free, navigable, and other types of feedback and feed-forward phenomena in networks – leading to new understandings of network dynamics – was submitted to *Physica A*. Applying the same measurement and modeling techniques to data from 42 different historical periods on city-size distributions led to an entirely new way to describe and theorize urban hierarchies and their dynamics.

In development is White's project, the subject of various conference and colloquium presentations, that puts these ideas to measurement and testing in the context of a 3.25 century study of civilization networks in the Medieval period (1175-1500). Several new and important findings have been made in this study, carried out with the collaboration of Cambridge Medieval historian, Peter Spufford, and benefiting from the feedback of scientists at the Santa Fe Institute.

### **III. GRADUATE TRAINING**

#### **A. Ph.D. and MA Students**

Working with the faculty of the Institute are 49 Ph.D. students and they are listed in Appendix F. Of these, the following students were enrolled in the Ph.D. program in Mathematical Behavioral Sciences during the current academic year:

Dan Cavagnaro  
Rolf Johnson  
Fabio Leite  
Joel Schwarzbart  
Alex Strashney  
Laurent Tambayong

In addition, 3 students will join the program in the Fall.

During the year, the Institute continued the program of recruiting students via a mass e-mail describing our program to the Chairs and Graduate Advisors of the major colleges and universities in the country.

Insofar as the Institute's budget allows, students in MBS as well as other students whose research relates to MBS are awarded summer stipends. This past year IMBS received 14 proposals requesting summer funds, and of those, the following 10 students were awarded funds in varying amounts:

Amer Aladhad – Economics  
James Bono – Economics  
Dan Cavagnaro – IMBS  
Hao Jia – Economics

Lingfang “Ivy” Li – Economics  
Rory Smead – Logic and Philosophy of Science  
Jared Smith – Cognitive Sciences  
Laurent Tambayong – IMBS  
Yogesh Uppal – Economics  
Kevin Zollman – Logic and Philosophy of Science

A condition of the support is that the student gives a talk during the academic year on his/her research. Below are the students who were given support in the summer of 2004 and their topics:

Hao Jia – “Notes on an Econometric Approach of Contest Success Functions”  
Tianjun Feng – “Modeling the Effects of Reference Point Dependence on Supplier Selection”  
Alex Strashny – “Comparison Systems”  
Ashish Chaturvedi – “Whither NGOs? The Anatomy of the Third Sector Revolution”  
Eric Ayzenshtat & Joshua Chan – “Equilibrium Concept”  
Garrett Asay – “An Empirical and Theoretical Analysis of Negative Campaigning”  
Fabio Leite – “Input Strength Variability”  
Lingfang (Ivy) Li – “How to take Sen's theorem and extend it?”  
Sam Hillier – “A Bayesian Model of ‘Probable Approximate Truth”  
Kevin Zollman – “Variable Environments”

## **B. Graduate Student Council**

This is the second year since the formation of the IMBS Graduate Student Council. The Council is composed of 4 graduate students. Their purpose is to foster interaction between graduate students in research areas similar to MBS.

This past year the IMBS Graduate Council organized student meetings with colloquia speakers. This gave students an opportunity to interact and network with professors. They also conducted surveys of four graduate classes. The hope is to gain some insight into how students perceive IMBS and how to facilitate more involvement of the social science student body. The results of the survey will be available this fall. The Council also cooperated with other graduate students in putting on the 3rd Annual Graduate Student Conference. The conference agenda can be found in Appendix G.

### **Council Members:**

Garret Asay (Co-Chair) – Economics  
Fabio Leite – IMBS  
Amjad Toukan (Co-Chair) – Economics  
Yogesh Uppal – Economics

## **C. Research Seminars**

The research activities of the Institute members often result in graduate research seminars. Among those this year were:

Stochastic Processes [Batchelder]  
Introduction to Psychology [Birnbaum]  
Advanced Computer Applications [Birnbaum]

Theoretical Approaches to Perception [Braunstein]  
Professional and Laboratory Skills [Braunstein]  
Cognitive Modeling [Brown/Steuyvers]  
Network Theory [Butts]  
Networks and Organizations [Butts]  
Psychophysical Methods [Chubb, Sperling]  
Color Perception [D’Zmura]  
Mind-Body Problem [Hoffman]  
Topics in Decision Theory [Kopylov]  
Research Methods [McGann]  
Networks and Social Evolution [White]  
Game Theory Modeling [Narens, Saari, Skyrms]  
Decision theory doctoral seminar [Keller]  
Marketing Ph.D. student reading group on decision theory [Keller]  
Applied Mathematics [Komarova]  
Political Economy [Saari]  
Urban Economics [Small]  
Special Topics in visual Psychophysics [Sperling]

The Institute held a weekly seminar on “*Decisions and Vision*”, organized by Professors Robin Keller and Charles Chubb. Each session looked at the interactions between vision and decision and the aim was to discuss: a) how people see can be combined with research on b) how people do and should make decisions, perceive and compute probabilities, etc. For example, suppose you give someone a webpage on which various colors and shapes are displayed and they make a shopping choice. What aspects of the visual display will influence the choice? Or, suppose you show people a board with 100 squares and 30 of them are blackened in a random pattern. What will people say the probability of falling on a blackened square is? What factors of the visual display will affect the probability judgment?

#### **D. Graduate Emphasis**

A new Emphasis was created within the IMBS graduate program. We believe this new Emphasis in “Games, Decisions, and Dynamical Systems”, will help in the recruitment, training, and placement of graduate students in the program, and help the Institute obtain extramural funding for research and training grants for graduate and post-doctoral students. The Emphasis is not designed to replace or compete with portions of graduate programs within Departments in the School of Social Sciences or more generally on the Irvine Campus. Rather, it is designed to strengthen portions of graduate programs with which it shares a content interest.

The focus research group on “Social Dynamics and Evolution” organized and taught a core graduate curriculum and conducted an extensive recruitment effort, with four applications made, and one scholarship award. Two of these candidates were rejected and one chose to enter graduate school at Stanford. Another student, recruited into the Mathematics Department, will have a collateral affiliation with the group, within IMBS.

#### **IV. COMMUNICATION**

## A. Conferences

This past year IMBS held conferences on various topics and the agenda for each one can be found in Exhibit G. They are each listed here along with a brief synopsis:

- 1. *GAME THEORY AND ITS APPLICATIONS*** – On September 18, IMBS hosted a one-day conference on Game Theory and its applications. The purpose was to introduce to a wide audience the basics of game theoretic analysis and also to illustrate the wide variety of applications of game theory. Attendees included professors, teachers, and graduate students from various schools in southern California, and presenters included political scientists, economists, and mathematicians.
- 2. *DECISIONS AND JUSTICE*** – This conference focused on some recent problems with scientific evidence being used in the criminal justice system such as DNA, bullet lead, fingerprints, and eyewitness testimony. A presentation by an expert in the application of each type of evidence was followed by a discussion who highlighted mathematical issues that have been raised and proposed any new approaches that may be taken.
- 3. *3<sup>RD</sup> ANNUAL GRADUATE STUDENT CONFERENCE*** – This yearly conference brings together Ph.D. students from various disciplines. It gives students a chance to report on their current research areas and to share ideas.
- 4. *DECISIONS, SPORTS AND STATISTICS*** – Experts in each of the areas of Rankings, Game Theory and Ratings, and BCS, gave a presentation on the modeling of sports and how game theory can be applied to these areas.
- 5. *COGNITIVE PSYCHOMETRICS: COGNITIVE MODELS AS MEASUREMENT TOOLS*** – The conference consisted of a series of invited talks by researchers who have been developing or using multinomial processing tree (MPT) models or models from Cultural Consensus Theory (CCT). The purpose of the conference was two-fold: 1. to share the latest applied and theoretical developments involving these two families of models; and 2. to discuss and pose open theoretical, statistical, computational, and experimental problems whose solutions will improve the applicability of the models. The aim was by bringing together both experimentalists and theoreticians involved, a research agenda would emerge that would take both MPT and CCT models to the next level.
- 6. *4-DIMENSIONAL WORLDS*** – This conference was organized around three themes. *Science* that touches on the use of four- and higher-dimensional spaces in math and physics; *Art* that embraces both creative art and art history; and *Visualization* that focuses on computer-graphic representations of four-dimensional objects, data, and virtual worlds. Professor Tom Banchoff, known worldwide as a research mathematician specializing in the Fourth Dimension, was the keynote speaker.
- 7. *INDIVIDUAL DECISIONS IN HONOR OF DUNCAN LUCE'S 80<sup>TH</sup> BIRTHDAY*** – This conference was held in honor of the Institute's founding Director, R. Duncan Luce on his 80<sup>th</sup> birthday, and to recognize one of his best known research areas, individual decision-making.

## B. Conferences/Seminars organized by IMBS Members

### **William Batchelder**

Conference on Cognitive Psychometrics: Cognitive Models as Measurement Tools. Co-organized with Kim Romney and held under the auspices of IMBS at UC Irvine, January 2005.

### **Michael Birnbaum**

Bayesian Research Conference, January, CSUF, 2005.

Advanced Training Institutes in Web-Based Research, CSUF, July, 2005.

### **Carter Butts**

Introduction to Social Network Analysis Workshop, Irvine, CA, June 2005. Co-organizer.

25th International Sunbelt Social Network Conference, Redondo Beach, CA, February 2005. Co-organizer.

IMBS Symposium, "Current Research on Network Comparison," Irvine, CA, July 2004.

2004 UCI Social Network Research Group Meetings.

### **de Figueiredo**

2004 IEEE International Conference of Circuits and Systems for Communications (ICCSC 2004), Moscow, Russia, June 30-July 2, 2004. Co-Chair.

2005 IEEE Emerging Technologies Workshop (ETW 2005) on the theme "Circuits and systems for 4G Wireless Communications", St. Petersburg, Russia, June 23-24, 2005. Co-Chair.

### **Michael D'Zmura**

Co-organizer – "4-Dimensional Worlds", UC IMBS Conference, February 2005, held under the auspices of IMBS.

### **Bernard Grofman**

A conference on Pluralitarian/Majoritarian Electoral Systems (Borchard Foundation, \$25,000, with \$2,500 supplemental funding from the UCI Center for the Study of Democracy; with James Adams and Shaun Bowler), Missillac, France, June, 2004.

### **Marek Kaminski**

Conference on Judging Transitional Justice (co-organized with Monika Nalepa). Irvine, October 30-31, 2004.

### **Robin Keller**

Member of Program Committee for International Federation of Operations Research Societies (IFORS), 2005 conference in Hawaii.

**Vladimir Lefebvre**

Organized an Invited Session, “Modeling and Simulation of Decision Making Processes”, within The 8th World Multi-Conference on Systemics, Cybernetics and Informatics. Orlando, FL July 18-21, 2004.

**Louis Narens**

Conference on Individual Decisions (Honoring R. Duncan Luce) sponsored by IMBS, in May 2005.  
Co-organizer

**Brian Skyrms**

Social Dynamics Working Group Santa Fe Institute April 6-9, 2005

**George Sperling**

Thirtieth Annual Interdisciplinary Conference, Jackson Hole, Wyoming, January 30 - February 4, 2005.

**Hal Stern**

Organizing Committee, Better Policy Through Statistics: A Symposium in Honor of John Rolph, Costa Mesa, CA Feb 2005.

Organizing Committee, Genetics and Epidemiology Research Institute Initial Symposium, Irvine, CA Feb 2005.

Organizing Committee, Decision, Sports and Statistics Conference, Irvine, CA, 2004, held under the auspices of IMBS.

**Doug White**

Organized the first of a series of the conferences planned by the IMBS focus research group on “Social Dynamics and Evolution”, 2004-05.

**Hong-Kai Zhao**

International Conference on Multiscale Methods and Partial Differential Equations, August 2005, UCLA.

Invited Minisymposium on Level Set Methods and Inverse Problems, SIAM annual meeting, New Orleans, July 2005.

International Conference on Scientific Computing, Nanjing, China, June 2005..

International Conference on Image Processing and Computer Vision, Hangzhou, China, December 2004.

### **C. Future Conferences**

The Institute is planning several conferences next year. Some topics will be the “Evolution of Norms”, “Spatial Voting”, and “Linguistics”.

### **D. Visitors**

The Institute hosted 7 visitors during the 2004-05 year. Some of their letters can be found in Appendix H.

Janós Aczél  
Department of Pure Mathematics  
University of Waterloo  
Waterloo, Ontario, Canada

Kimberly Jameson  
IMBS Visiting Scholar

Anthony A. J. Marley  
Department of Psychology  
McGill University  
Montreal, Canada

Sandeshika Sharma  
IMBS Post Doc

Brian Lawson  
Assistant Professor  
Department of Political Science  
University of Cincinnati

Michael Jones  
Associate Professor of Mathematical Sciences  
Montclair State University

Andrea Knecht  
Sociology Graduate Student  
University of Utrecht in the Netherlands.

Next year the Institute will sponsor the visit of Professor Simon Levin, Moffett Professor of Biology and Director of the Center for BioComplexity at Princeton University.

### **E. Colloquium Series**



During the academic year the Institute had a colloquia series with speakers both from the Institute and from the outside. A committee consisting of Marek Kaminski and Michael McBride facilitated our series. For speakers outside California, we attempt, insofar as possible, to coordinate their visit with other travel to California. Some speakers are brought here jointly with UCLA's Marschak Colloquium where the speaker first talks at UCI on a Thursday and at UCLA on the following day. We distributed a relevant paper, when available, prior to each colloquium. The papers are also downloadable from the IMBS web site at [www.imbs.uci.edu](http://www.imbs.uci.edu).

The focus group in Social Dynamics and Evolution also held regular colloquia and these events are listed on their web site at <http://eclectic.ss.uci.edu/ResFocusGrp>. It also continues publication of their MBS-based refereed eJournal, *Structure and Dynamics*. A web site is now viewable at <http://www.socsci.uci.edu/socdyn>. The group has organized a new graduate curriculum with core seminars and has proposed to the faculty senate a new undergraduate interdisciplinary minor in Social Dynamics and Evolution.

Listed below are the IMBS colloquia as well as those in Social Dynamics and Evolution.

**IMBS**  
**FALL 2004**

**October 7**

ALAN NATAPOFF, Center for Space Research, Dept. of Aeronautics and Astronautics, MIT  
*"How Poker, Baseball, and Fermat Teach Us the Best Way to Elect the President"*

**Wednesday, October 13**

ELIZABETH LOFTUS, Department of Social Ecology, UCI  
*"What's the Matter with Memory?"*

**October 21**

RICHARD SCHWEICKERT, Department of Psychological Sciences, Purdue University  
*"Constructing a Binomial Processing Tree through Selective Influence with Application to Immediate Serial Recall"*

**October 28**

DAVID K. LEVINE, Department of Economics, UCLA  
*"The evolution of cooperation through imitation"*

**November 4**

Celebrating Jean Claude Falmagne on his 70th birthday: the man and his research.

**November 18**

LIPING LIU, Department of Management and Information Systems, Univ. of Akron  
*"Taming Complexity for Decision Making: A Theory of Coarse Utility and its Derivatives"*

**December 2**

JUN ZHANG, Department of Psychology, University of Michigan

*"Borda Scores and Aggregation of Preference: A Geometric-Combinatoric and A Topological Approach"*

### **IMBS WINTER 2005**

#### **January 13**

MARK MACHINA, Department of Economic, University of California, San Diego

*"Robustifying the Classical Analytics of Uncertainty, Risk Preferences and Beliefs"*

#### **January 20**

ROBERT POWELL, Department of Political Science, UC Berkeley

*"War as a Commitment Problem"*

#### **January 27**

DOYNE FARMER, McKinsey Professor of Physics, Santa Fe Institute

*"The low intelligence approach to economics: Deriving simple laws for the statistical properties of markets"*

#### **February 3**

MICHAEL BIRNBAUM, Department of Psychology, Cal State Fullerton

*"A Comparison of Two Theories of Loss Aversion in Risky Decision Making"*

#### **Tuesday, February 8**

JOEL COHEN, Laboratory of Populations, Rockefeller University & Columbia University

*"Cooperation and self-interest: Pareto-inefficiency of Nash equilibria in finite random games"*

#### **February 17**

JEAN-CLAUDE FALMAGNE, Department of Cognitive Sciences, UC Irvine

*"Knowledge Spaces, Media Theory, and the Precedence Diagram"*

#### **Friday, February 25**

TOM BANCHOFF, Department of Mathematics, Brown University

*"Four-Dimensional Worlds: From 'Flatland' to Interactive Hypergraphics"*

#### **March 3**

TONY MARLEY, Department of Psychology, University of Victoria

*"Probabilistic Models for Best, Worst, and Best-Worst Choices"*

#### **March 10**

LEO SUGRUE AND DAN CORRADO, Ph.D. Students, Dept. of Neurobiology, Stanford

*"Value Based Decision Making: A Combined Behavioral, Modeling, and Physiological Approach"*

#### **March 17**

BARRY O'NEIL, Dept. of Political Science, UCLA

*"Communicating in Good and Bad Faith"*

## IMBS SPRING 2005

### **April 7**

MIKE D'ZMURA, Department of Cognitive Science, UC Irvine  
*"Navigation in 4-D Virtual Environments"*

### **April 14**

NORMAN SCHOFIELD, Center in Political Economy, Washington University in St. Louis  
*"Divergence in the Spatial Stochastic Model of Voting "*

### **April 21**

KIM ROMNEY, Department of Anthropology, UC Irvine  
*"The distribution of LGN neuron response spectra compared to the distribution of Munsell reflectance spectra"*

### **April 28**

MARK SATTERTHWAITE, Department of Management and Strategy Kellogg School of Management, Northwestern University  
*"Private Information, Prices, and Market Efficiency"*

### **May 5**

ARIANE MOGILIANSKY, Department of Economics, École Normale Supérieure  
*"Non-classical (Quantum) Logic - Toward a Theory of Actualized Preferences"*

### **May 12**

HERVE MOULIN, Department of Economics, Rice University  
*"Minimizing the worst slowdown: off-line and on-line"*

### **May 19**

PIERRE BALDI, Information and Computer Sciences and Dept. of Biological Chemistry, UC Irvine and LAURENT ITTI – Department of Computer Sciences, USC  
*"Bayesian Surprise Attracts Human Attention"*

### **May 26**

SIMON LEVIN, Department of Ecology and Evolutionary Biology, Princeton University  
*"Evolutionary Perspectives on Ecological and Economic Games"*

### **June 1**

UZI SEGAL, Department of Economics, Boston College  
*"Calibration Results for Non-Expected Utility Theories"*

### **June 9**

RICHARD EASTERLIN, Department of Economics, USC  
*"Is There an Iron Law of Happiness"*

## **SOCIAL DYNAMICS AND EVOLUTION**

## **FALL 200**

### **October 19**

DOUGLAS WHITE, Chair, Social Dynamics and Evolution group

“How Networked Worlds Evolve: Europe, the World Economy, Biotechnology, and Ring Cohesion”

### **October 21**

DOUGLAS WHITE, Chair, Social Dynamics and Evolution group

“Simulating feedback processes in social networks: Models for Kinship, Intercity Networks, and Biotechnology”

### **October 25**

DAVID SMITH, UCI Sociology

“Globalization and the New Economy”

### **October 26**

DOUGLAS WHITE, Chair, Social Dynamics and Evolution group

“The Rise of Europe as a Trading Region and the Dynamics of Evolutionary Entailments: Intercity Trade Network Dynamics in the context of larger historical dynamics of Population and Sociopolitical Violence”

### **October 27**

PADHRAIC SMYTH, UCI Information and Computer Science

“Learning from data with graphical models”

### **October 28**

DOUGLAS WHITE, Chair, Social Dynamics and Evolution group

“Retrospect and Prospects for Theories of Network Dynamics and Ring Cohesion: Kinship Networks, Intercity Networks, and Networks in Biotechnology “

### **October 29**

Graduate Student led colloquium

“Current Problems and Prospects for the Study of Social and Economic Dynamics: Reports on Student Projects.”

## **SOCIAL DYNAMICS AND EVOLUTION**

### **WINTER 2005**

### **January 27**

DOYNE FARMER AND DOUGLAS WHITE, Santa Fe Institute and IMBS

“Simulating Network Cohesion”

### **February 4**

HENRY WRIGHT, Santa Fe Institute and University of Michigan

“Origins of States and Civilizations”

**February 8**

VLADOMIR BATAGELJ AND NATASA KEJZAR, University of Ljubljana, Slovenia  
“Networks and Dynamics-- Pajek team Workshop I”

**February 10**

ANDREJ MRVAR, THOMAS GREGOR AND ANUSHA FERLIGOJ, University of Ljubljana, Slovenia  
“Networks and Dynamics-- Pajek team Workshop II”

**February 15**

CAMILLE ROTH, Center for Research in Applied Epistemology, CNRS / Ecole Polytechnique  
“Networks and Galois Lattices”

**March 17**

ANDREY KOROTAYEV , Russian Academy of Sciences, Russian State University for Humanities  
“A Compact Macro-Model of World Population Growth”

**March 21**

DARIA KHOULTARINA, Center for Civilizational and Regional Studies of Russian Academy of Sciences  
“Two Faces of Demographic Crisis; Eastern Europe and Sub-Saharan Africa”

**V. BUDGET**

A. Appropriations and Expenditures

Appropriations:

IMBS 2004-05 Allocation	\$ 94,649
IMBS 2003-04 Carry Forward	\$ 42,854
IMBS Conference Support	\$ 11,000
CDA 2003-05 Carry Forward	<u>\$ 56,802</u>
Total budget for 04-05	\$205,305

Expenditures:

Salaries (Director, Staff, Post-Doc)	\$ 64,909
School Administrative Support	\$ 7,500
Conference/Colloquia	\$ 40,031
Equipment	\$ 1,305
Supplies & Expenses	\$ 15,160
Graduate Student Support	\$ 15,150

Total Expenditures: \$ 144,055

*Carry Forward to 2005-06*                      \$61, 250

2005-06 Encumbrances:

Graduate Student Support    \$14,000

**B. Extramural Funding Activity**

IMBS faculty research was supported by 37 research grants. At present, 4 individual grants are pending. Following is a detailed breakdown of the extramural funding.

**GRANTS AWARDED AND ACTIVE:**

<b>PI</b>	<b>Source</b>	<b>Amount</b>	<b>Dates</b>
<b>Birnbaum</b> <i>Advanced Training Workshops.</i>	APA	\$24,000	7/05-6/06
<b>Birnbaum</b> <i>Advanced Training Institute in Social Psychology: Using the Internet to Conduct Experiments.</i>	NSF	\$151,765	7/01-6/05
<b>Birnbaum</b> <i>Judgment and Decision-making on the Internet.</i>	NSF	\$99,324	7/00-6/06
<b>Braunstein</b> <i>Visual Perception of Surfaces Defined Through Motion</i>	NIH Fogarty Int'l	\$58,285	7/02-6/05
<b>Brown/Stevers</b> <i>Inference in Dynamic Environments</i>	AFRL/AFOSR	\$380,000	7/03-6/06
<b>Brownstone</b> <i>Evaluation of Incorporating Hybrid Vehicle Use of HOV Lanes (with W. Recker and T. Golub through PATH).</i>	CA Dept of Trans.	\$133,025	9/04-12/05
<b>Butts</b> <i>Collaborative Research: Responding to the Unexpected. (PI) Mehrotra, Sharad. Co-PIs Butts, Carter; Eguchi, Ronald; Venkatasubramanian, Nalini; and Winslett, Marianne.</i>	NSG ITR	\$8,957,651.00	10/03-9/08
<b>Chubb</b> <i>Semantic Biological Image Management and Analysis. Co-PIs: P. Sheu, C. Cotman.</i>	NSF	\$300,003	8/03 – 7/06
<b>Chubb</b> <i>Effects of Temporal Lobectomy on Sensory Deficits in TLE. Co-PIs C. Chubb, G. Hickok, F-G Zeng.</i>	NINDS	\$688,560	9/03 – 5/08
<b>Chubb</b> <i>Semantic Biological Image Management and Analysis. CoPIs: P. Sheu, C. Cotman, C. Chubb</i>	NSF	\$300,003	8/03 – 7/06
<b>Grofman</b> <i>A conference on Pluralitarian/Majoritarian Electoral Systems. With James Adams and Shaun Bowler</i>	Borchard Foun.	\$25,000	2004
<b>Hoffman</b>	Alzheimer's Assoc.	\$387,000	8/01-7/05

*The role of parts in the visual perception of objects.*

<b>Kaminski</b>	CSD, GPACS	\$19,300	1/04-12/04
<i>Conference on Transitional Justice in October 200. Co-PI with Monika Nalepa</i>			
<b>Keller</b>	NSF & U. of AZ	\$6,900,000	9/04-8/09
<i>Decision Center for a Desert City. Serve on decision research team with Craig Kirkwood, Don Keefer, and Bill Verdini of ASU.</i>			
<b>Komarova</b>	NIH	\$299,564	7/05-6/10
<i>Specificity and spatial dynamics of cell signaling: theory and experiment</i>			
	NIH	\$299,564	7/05-6/11
<b>Komarova</b>	<i>Mathematical modeling of programmed CT proliferation</i>		
<b>Komarova</b>	Sloan Fellowship	\$45,000	7/05-6/06
<b>Luce</b>	NSF	\$215,000	3/02-2/05
<i>Algebraic and Stochastic Models of Structures arising in Utility Theory and Psychophysics</i>			
<b>McBride</b>	Ctr. for Study of Democracy	\$2,160	
<i>Well-being, Aspirations, and Democracy in the Laboratory, seed grant</i>			
<b>Romney/Batchelder</b>	NSF	\$ 300,000	2/02-1/05
<i>Research in the Foundation and Practice of Social Measurement</i>			
<b>Saari</b>	NSF	\$ 100,000	8/02-7/05
<i>Examining a model for engineering design.</i>			
<b>Small</b>	Calif. Air Resources.	\$ 75,590	6/03-9/05
<i>Study to evaluate effects of improved fuel economy on vehicle miles traveled and resulting economic impacts. (Lead P.I. with co-PIs D. Brownstone and K. Van Dender).</i>			
<b>Small</b>	UC Energy Institute.	\$ 35,000	7/05-6/06
<i>The Impact of Transportation Fuel Conservation Strategies in California</i>			
<b>Smyth</b>	NSF.	\$1,430,750	9/01-8/06
<i>Data Mining of Digital Behavior</i>			
<b>Smyth</b>	NSF	\$566,644	10/04-9/07
<i>Statistical Data Mining of Time-Dependent Data with Applications in Geoscience and Biology</i>			
<b>Smyth</b>	NSF	\$8,080,000	10/02-9/07
<i>The OptIPuter</i>			
<b>Smyth</b>	NSF	\$3,703,924	10/03-9/08
<i>Responding to the Unexpected.</i>			



<b>Smyth</b>	Dept. of Energy	\$360,000	10/04-9/07
<i>Studies of regional-scale climate variability and change: hidden Markov models and coupled ocean-atmosphere modes.</i>			
<b>Smyth</b>	IBM Entity Analytics	\$74,000	7/05-9/05
<i>UCI KDD Evaluation Challenge</i>			
<b>Smyth</b>	UCI CORCLR	\$18,000	7/05-6/06
<i>Bringing Probabilistic Text Mining Techniques to Historical Document Collections: An Early American Case Study.</i>			
<b>Smyth</b>	NIH	\$1,724,026	10/04-9/07
<i>Transdisciplinary Imaging Genetics Center</i>			
<b>Sperling</b>	AFO: Scientific. Res.	\$438,624	4/04-12/06
<i>Deriving a Computational Theory of Visual Spatial Attention.</i>			
<b>Srinivasan</b>	NIMH	\$1,473,000	4/04-12/05
<i>Dynamic neuroimaging with high-resolution SSVEPs</i>			
<b>Steyvers</b>	AFRL/AFOSR	\$371,616	7/04 – 6/06
<i>Inference in dynamic environments: An empirical and theoretical investigation into dynamic decision making environments.</i>			
<b>Steyvers</b>	NSF-DARPA-NSA	\$726,600	10/02 – 5/05
<i>Entity-Based Data Mining from Spatiotemporal and Text-Based Data Streams. Co-PI with P. Smyth</i>			
<b>White</b>	EU Grant	\$10,000	1/02-12/05
<i>Society as a Complex System (PIs on the main grant are Profs. Sander van der Leeuw, David Lane and Geoffrey West (sub-contract component).</i>			
<b>Zhao</b>	ONR	\$650,000	11/01-10/04
<i>ONR: Time Reversal and Imaging in Heterogeneous and Noisy Environments</i>			
<b>Zhao</b>	DARPA	\$500,000	2/04-11/05
<i>Time Reversal and Imaging in a Multiscale Environment and Applications to Imaging and Communications.</i>			

**INDIVIDUAL PROPOSALS PENDING**

<b>Grofman</b>	Canadian Embassy.	\$5,000	
<i>Economic Growth and the Production of Spiritual Capital ( with \$5,000 supplemental funding from UCI Center, with Stergios Skaperdas)</i>			
<b>McBride</b>	Metanexus Institute	\$150,000	
<i>Economic Growth and the Production of Spiritual Capital (with Stergios Skaperdas).</i>			

**Smyth**                      NSF                      \$550,000  
*Characterizing ITCZ dynamics and breakdown using statistical learning methods and satellite data*

**Smyth**                      IGERT                      \$550,000  
*IGERT: Statistical Machine Learning*

## VI. APPENDICES

### APPENDIX A CURRENT FACULTY MEMBERS

#### MEMBERS

Aldo Antonelli, (Ph.D Philosophy, University of Pittsburgh). Professor of Philosophy, University of California, Irvine. Research areas: knowledge representation an non-monotonic reasoning, non-standard set theories, especially Quine’s “New Foundations”, logical foundations of game theory and applications to distributed artificial intelligence.

Pierre F. Baldi (Ph.D. Mathematics, California Institute of Technology). Professor, Information and Computer Science, Director of the Institute for Genomics and Bioinformatics. Research areas: Bioinformatics/Computational Biology, Probabilistic Modeling/Machine Learning.

Jeffrey Barrett, (Ph.D. Philosophy, Columbia University). Professor of Philosophy, University of California, Irvine. Research areas: philosophy of science and the theory of knowledge, philosophy of physics.

William H. Batchelder, (Ph.D. Psychology, Stanford University). Director, Institute for Mathematical Behavioral Sciences, and Professor of Cognitive Sciences, University of California, Irvine. Research areas: Mathematical modeling and measurement methodology in the social and behavioral sciences.

John P. Boyd, (Ph.D. Communication Sciences, University of Michigan). Professor of Anthropology, University of California, Irvine. Research areas: Algebraic models of social relations, quantitative methods, and sociobiology.

Myron L. Braunstein, (Ph.D. Psychology, University of Michigan). Professor of Psychology, University of California, Irvine. Research areas: Visual perception, especially depth and motion perception.

William Branch, (Ph.D. Economics, University of Oregon). Assistant Professor of Economics, University of California, Irvine. Research areas: Macroeconomics, economic theory.

Scott Brown, (Ph.D. Mathematics, University of Newcastle). Assistant Professor of Cognitive Sciences. Research areas: Mathematical models of reaction time and practice.

David Brownstone, (Ph.D. Econometrics and Applied Microeconomics, University of California, Berkeley). Professor of Economics, University of California, Irvine. Research areas: Computer-intensive analysis of statistical estimation strategies and applied econometrics.

Carter Butts, (Ph.D. Sociology, Carnegie Mellon University). Assistant Professor of Sociology. Research areas: Computational and Mathematical Organization Theory, Games and Economic Behavior.

Charles Chubb, (Ph.D. Experimental Psychology, New York University). Professor of Psychology, University of California, Irvine. Research areas: neural networks, perceptual learning, visual coding, visual short-term memory, and human choice behavior.

Carol Cicerone, (Ph.D. Psychology, University of Michigan). Professor of Cognitive Sciences, University of California, Irvine. Research areas: Vision, especially human color vision and the regulation of visual sensitivity; biological bases of visual perception.

Barbara Doshier, (Ph.D. Experimental Psychology, University of Oregon). Professor of Cognitive Sciences, University of California, Irvine. Research areas: Memory, visual perception, and depth from visual motion.

Michael D’Zmura, (Ph.D. Psychology, University of Rochester). Professor of Cognitive Sciences, University of California, Irvine. Research areas: Visual perception, color, image understanding, and attention.

Jean-Claude Falmagne, (Ph.D. Psychological Sciences, University of Brussels). Professor of Cognitive Sciences, University of California, Irvine. Research areas: Assessment of knowledge, measurement theory, psychophysics, and mathematical psychology.

Katherine Faust, (Ph.D. Social Science, University of California, Irvine). Professor of Sociology, University of California, Irvine. Research areas: Social Networks, research methods.

Linton C. Freeman, (Ph.D. Sociology, Northwestern University). Research Professor of Social Sciences, University of California, Irvine. Research areas: Cognition of social structure, social networks.

Michelle Garfinkel, (Ph.D. Economics, Brown University). Professor of Economics, University of California, Irvine. Research areas: Strategic aspects of Monetary and Fiscal Policies.

Amihai Glazer, (Ph.D. Economics, Yale University). Professor of Economics, University of California, Irvine. Research areas: Public Choice, especially concerning commitment problems.

Bernard Grofman, (Ph.D. Political Science, University of Chicago). Professor of Political Science and Social Psychology, University of California, Irvine. Research areas: Models of group decision making, models of individual choice, electoral competition.

Donald Hoffman, (Ph.D. Computational Psychology, Massachusetts Institute of Technology). Professor of Cognitive Sciences and Information and Computer Science, University of California, Irvine. Research areas: Formal theories of perception, human and machine vision, recovery of depth from images.

Tarow Indow, (Ph.D. Psychology, Keio University, Tokyo). Professor Emeritus of Cognitive Sciences, University of California, Irvine. Research areas: Quantitative analysis and mathematical models in space perception, color perception, and retrieval from long-term memory.

Geoffrey Iverson, (Ph.D. Theoretical Physics, University of Adelaide, Australia; Ph.D. Experimental Psychology, New York University). Professor of Cognitive Sciences, University of California, Irvine. Research areas: Psychophysics, statistical estimation/testing of ordinal models.

L. Robin Keller, (Ph.D. Management Sciences, University of California, Los Angeles. ) Professor of Administration and Social Sciences, Graduate School of Management, University of California, Irvine. Research areas: Individual decision-making, risk analysis, decision problem structuring.

Natalia Komarova, (Ph.D. Applied Mathematics, University of Arizona), Assistant Professor, Department of Mathematics and Ecology & Evolutionary Biology. Research areas: Mathematical modeling and biology, virus dynamics, cancer modeling.

R. Duncan Luce, (Ph.D. Mathematics, Massachusetts Institute of Technology). Distinguished Research Professor of Cognitive Sciences, and Research Professor of Economics, University of California, Irvine. Research areas: Axiomatic theories of measurement, probabilistic choice and response time models, individual decision making.

Mark J. Machina, (Ph.D. Economics, Massachusetts Institute of Technology). Professor of Economics, University of California, San Diego. Research areas: Utility, decision making, risk behavior.

Penelope Maddy, (Ph.D. Philosophy, Princeton). Professor of Logic and Philosophy of Science, University of California, Irvine. Research areas: Philosophy of mathematics, especially the philosophy of set theory.

Michael McBride, (Ph.D. Economics, Yale University). Assistant Professor of Economics. Research areas: Microeconomics, game theory, and political economy.

Anthony McGann, (Ph.D. Political Science, Duke University). Assistant Professor of Political Science, University of California, Irvine. Research areas: party systems, democratic theory, formal models of political systems, European government.

Louis E. Narens, (Ph.D. Mathematics, University of California, Los Angeles). Professor of Cognitive Sciences, and Psychiatry and Human Behavior, University of California, Irvine. Research areas: Measurement theory, foundations of science, decision theory.

Dale Poirier, (Ph.D. Economics, University of Wisconsin). Professor of Economics, University of California, Irvine. Research areas: econometrics, both theoretical and empirical, specializing in Bayesian econometrics.

A. Kimball Romney, (Ph.D. Social Anthropology, Harvard University). Research Professor of Anthropology, University of California, Irvine. Research areas: Cognitive anthropology, cultural consensus, quantitative methods.

Donald G. Saari, (Ph.D. Mathematics, Purdue University). Distinguished Professor of Mathematics and Economics, University of California, Irvine. Research areas: Mathematics and application of dynamical system to social sciences; decision theory.

Stergios Skaperdas, (Ph.D. Economics, Johns Hopkins University). Professor of Economics, University of California, Irvine. Research areas: Bargaining models, applications of non-cooperative game theory, bilateral exchange.

Brian Skyrms, (Ph.D. Philosophy, University of Pittsburgh). Professor of Philosophy, University of California, Irvine. Research areas: Probability, induction, causation, rational choice.

Kenneth Small, (Ph.D. Economics, University of California, Berkeley). Professor of Economics, University of California, Irvine. Research areas: Urban economics, transportation economics, discrete-choice econometrics, energy.

Padhraic Smyth, (Ph.D. Electrical Engineering, California Institute of Technology). Professor, Information and Computer Science, University of California, Irvine. Research areas: Statistical pattern recognition, probabilistic learning, information theory, artificial intelligence, image and time-series modeling.

George Sperling, (Ph.D. Psychology, Harvard University). Distinguished Professor of Cognitive Sciences, University of California, Irvine. Research areas: Human information processing, vision and visual perception, computer vision and image processing.

Ramesh Srinivasan, (Ph.D. Biomedical Engineering, Tulane University). Assistant Professor of Cognitive Sciences, University of California. Research areas: Perception, development and cortical dynamics.

Hal Stern, (Ph.D. Statistics, Stanford University). Professor of Statistics, Department of Statistics, University of California, Irvine. Research areas: Bayesian methods, model diagnostics, statistical computing, applications to biological and social sciences, sports and statistics.

Mark Steyvers, (Ph.D. Psychology, Indiana University). Assistant Professor of Cognitive Sciences, University of California, Irvine. Research areas: Computational models of memory, reasoning and perceptions.

Douglas White, (Ph.D. Anthropology/Social Theory, University of Minnesota). Professor of Anthropology, University of California, Irvine. Research areas: Social theory, complexity, evolutionary theory, organization, networks, long-term field studies and social dynamics, world-system impacts on local communities, ethnosociology, comparative studies, quantitative methods; Mexico, Europe.

Charles (Ted) Wright, (Ph.D. Experimental psychology, University of Michigan). Associate Professor of Cognitive Science, University of California, Irvine. Research areas: Acquisition and cognitive representation of human skills, speed-accuracy trade-offs, models for shape of trajectories.

John I. Yellott, Jr. (Ph.D. Psychology, Stanford University). Professor Emeritus of Cognitive Sciences, University of California, Irvine. Research areas: Vision, probabilistic choice models.

Hongkai Zhao, (Ph.D. Mathematics, University of California, Los Angeles). Associate Professor of Mathematics, University of California, Irvine. Research areas: Applied and computational mathematics with applications in physics, engineering, imaging science and computer vision.

### **AFFILIATE MEMBERS**

Michael H. Birnbaum, (Ph.D. Psychology, University of California, Los Angeles). Professor of Psychology, California State University, Fullerton. Research areas: Human judgment, decision-making, and utility measurement.

Michael L. Burton, (Ph.D. Anthropology, Stanford University). Professor of Anthropology, University of California, Irvine. Research areas: Economics anthropology, cognitive anthropology, and cross-cultural research methods.

Linda Cohen, (Ph.D. Social Sciences, California Institute of Technology). Professor of Economics, University of California, Irvine. Research areas: Political economy, public choice, and governmental regulation of business.

Rui De Figueiredo, (Ph.D. Applied Mathematics, Harvard University). Professor of Electrical and Computer Engineering and Mathematics, University of California, Irvine. Research areas: Mathematical foundations of neural networks, contextual feedback models for automated image understanding.

Vladimir A. Lefebvre, (Ph.D. Psychology, Lomonosov Moscow State University). Researcher for Cognitive Sciences, University of California, Irvine. Research areas: Human reflexion, mathematical modeling of human inner world, military psychology.

David M. Riefer, (Ph.D. Psychology, University of California, Irvine). Professor of Psychology, California State University at San Bernardino. Research areas: Memory, cognitive science, and mathematical psychology.

Carole Uhlaner, (Ph.D. Political Science, Harvard University). Associate Professor of Political Science, University of California, Irvine. Research areas: Rational actor models and statistical analyses of political behavior, especially participation and voting; decision theory; comparative politics.

**APPENDIX B**  
**SCIENTIFIC PUBLICATIONS OF MEMBERS, ACADEMIC 2004-05<sup>1</sup>**

**Pierre Baldi**

S. J. Swamidass, J. Chen, P. Phung, J. Bruand, L. Ralaivola, and P. Baldi. (2005). Kernels for Small Molecules and the Prediction of Mutagenicity, Toxicity, and Anti-Cancer Activity. Proceedings of the 2005 Conference on Intelligent Systems for Molecular Biology, ISMB 05. *Bioinformatics*, 21, Supplement 1, i359-368.

J. Cheng, M. J. Sweredoski, and P. Baldi. (2005). Accurate Prediction of Protein Disordered Regions by Mining Protein Structure Data. *Data Mining and Knowledge Discovery*. In press.

P. Baldi and M. Rosen-Zvi. On the Relationship Between Deterministic and Probabilistic Directed Graphical Models: from Bayesian Networks to Recursive Neural Networks. *Neural Networks*, special issue on Neural Networks and Kernel Methods for Structured Domains. In press.

L. Ralaivola, J. S. Swamidass, H. Saigo, and P. Baldi. (2005). Graph Kernels for Chemical Informatics. *Neural Networks*, special issue on Neural Networks and Kernel Methods for Structured Domains. In press,

R. Jurdak, C. Videira Lopes, and P. Baldi. (2005). U-MAC: A Proactive and Adaptive UWB Medium Access Control Protocol. *Wireless Communications and Mobile Computing Journal*, Special Issue on UWB Communications, 5, 1-16.

S. Sundaresh, S. Hung, G. W. Hatfield, and P. Baldi. (2005). How Noisy and Replicable are DNA Microarray Data? *International Journal of Bioinformatics Research and Applications*, 1, 1, 31-50.

J. Cheng, L. Scharenbroich, P. Baldi, and E. Mjolsness. (2005). Sigmoid: Towards a Generative, Scalable Software Infrastructure for Pathway Bioinformatics and Systems Biology. *IEEE Intelligent Systems*. In press.

M. Brandon, M. Lott, K. Nguyen, S. Spolim, S. Navathe, P. Baldi, and D. Wallace. (2005). MITOMAP: a human mitochondrial genome database - 2004 update. *Nucleic Acids Research*, 33 (Database issue), D611-613.

S. Hampson, B. S. Gaut, and P. Baldi. (2005). Statistical Detection of Chromosomal Homology Using Shared-Gene Density Alone. *Bioinformatics*, 21, 8, 1339-1348.

R. Jurdak, C. Videira Lopes, and P. Baldi. (2004). A Survey, Classification, and Comparative Analysis of Medium Access Control Protocols for Ad Hoc Networks. *IEEE Communications Surveys and Tutorials*, 6, 1, 2-16.

---

<sup>1</sup> Those members not listed failed to respond to our request for information.



A. Z. Randall, P. Baldi, and L. P. Villareal. (2004). Structural Proteomics of the Poxvirus Family. *Artificial Intelligence in Medicine*, special issue on "Data mining in Genomics and Proteomics", 31, 2, 105-115.

P. Baldi, G. Wesley Hatfield, and Li M. Fu. Clustering Algorithms for Gene Expression Analysis. *Handbook of Computational Molecular Biology*. S. Aluru Editor, Chapman & Hall/CRC Press, Computer and Information Science Series. (2005).

S. Kremer and P. Baldi. Hidden Markov Models and Neural Networks. *Encyclopedia of Genetics, Genomics, Proteomics and Bioinformatics*. Wiley, (2004).

P. Baldi. Surprise: A Shortcut for Attention? In: *Neurobiology of Attention*. L. Itti, G. Rees, and J. Tsotsos Editors, Elsevier, San Diego, CA, 24-28, (2005).

### **Jeff Barrett**

Aitken W. and J. A. Barrett. (2005). Stability and Paradox in Algorithmic Logic. Submitted

Barrett, J. A. (2005). Relativistic Quantum Mechanics Through Frame-Dependent Constructions. *Philosophy of Science*. In press.

Aitken W. and J. A. Barrett. (2005). Computer Implication and the Curry Paradox. *Journal of Philosophical Logic*. In press.

Barrett, J. A. (2004). The Preferred Basis Problem and the Quantum Mechanics of Everything. *British Journal for the Philosophy of Science*. In press.

Barrett, J. A. (2004). Many-Worlds and Many-Minds Formulations of Quantum Mechanics. *Encyclopedia of Philosophy*. In press.

Barrett, J. A. and P. K. Stanford. (2004). Prediction. *Routledge Encyclopedia of Philosophy*. In press.

### **William Batchelder**

Knapp, B. and Batchelder, W.H. Representing parametric order constraints in multi-trial applications of multinomial processing tree models. *Journal of Mathematical Psychology*, 2004, 215-229.

Batchelder, W.H. and Riefer, D.M. Using multinomial processing tree models to measure cognitive deficits in patients with schizophrenia and other disorders. To appear in J. Neufeld (Ed.) *Advances in Clinical Cognitive Science: Formal Modeling and Assessment of Processes and Symptoms*. APA Books, 41 pp.

### **Michael Birnbaum**

Birnbaum, M. H. (2004). Methodological and ethical issues in conducting social psychology research via the Internet. In C. Sansone, C. C. Morf, & A. T. Panter (Eds.), *Handbook of Methods in Social Psychology* (pp. 359-382). Thousand Oaks, CA: Sage.

Birnbaum, M. H. (2004). Human research and data collection via the Internet. *Annual Review of Psychology*, 55, 803-832.

Birnbaum, M. H. (2004). Causes of Allais common consequence paradoxes: An experimental dissection. *Journal of Mathematical Psychology*, 48, 87-106.

Birnbaum, M. H. (2004). Tests of rank-dependent utility and cumulative prospect theory in gambles represented by natural frequencies: Effects of format, event framing, and branch splitting. *Organizational Behavior and Human Decision Processes*, 95, 40-65.

Birnbaum, M. H. (2004). Base rates in Bayesian inference. In R. F. Pohl (Ed.), *Cognitive Illusions* (pp. 43-60). New York: Psychology Press.

Birnbaum, M. H., & Reips, U.-D. (2005). Behavioral research and data collection via the Internet. In R. W. Proctor & K.-P. L. Vu (Eds.), *Handbook of human factors in Web design* (pp. 471-491). Mahwah, New Jersey: Lawrence Erlbaum Associates.

Goeritz, A. S., & Birnbaum, M. H. Generic HTML form processor: A versatile PHP script to save Web-collected data into a MySQL database. *Behavior Research Methods, Instruments, & Computers*. In press.

Birnbaum, M. H. Three New Tests of Independence that Differentiate Models of Risky Decision Making. *Management Science*. In press.

### **John Boyd**

Computing Core/Periphery Structures and Permutation Tests for Social Relations Data (with William J. Fitzgerald, and Robert J. Beck). *Social Networks*. In press.

### **Mike Braunstein**

Bian, Z., Braunstein, M. L., & Andersen, G. J. The ground dominance effect in the perception of 3-D layout. *Perception & Psychophysics*. In press

### **Scott Brown**

Chambers, Jones, Brown & Taylor. Natural reward-related learning in rats with neonatal ventral hippocampal lesions and prior cocaine exposure. *Psychopharmacology*. In press.

Brown & Heathcote (2005). Practice increases the efficiency of evidence accumulation in perceptual choice. *Journal of Experimental Psychology: Human Perception and Performance*.

### **David Brownstone**

Estimating Commuters' Value of Time" with Noisy Data: a Multiple Imputation Approach (with S. Steimetz), *Transportation Research B*. In press.

Valuing Time and Reliability: Assessing the Evidence from Road Pricing Demonstrations"(with K. Small), *Transportation Research A*, 39 (2005), pp. 279-293.

### **Mike Burton**

Michael L. Burton, Monica Della Croce, Shellie A. Masri, Maile Bartholomew, and Andre Yefremian. Sampling from the United States Census Archives. *Field Methods* 17:102-118, 2005.

M. L. Burton, E. Greenberger, and C. Hayward. Mapping the Ethnic Landscape. *Cross Cultural Research*. In press.

J. A. Egan, M.L. Burton, and K. L. Nero. Production and Circulation of Food in Yap. In Richard Wilk (Ed). *Fast Food/Slow Food: The Economic Anthropology of the Global Food System*. In press, Altamira Press.

### **Carter Butts**

Butts, Carter T. (2005). Exact Bounds for Degree Centralization. *Social Networks*. In press.

Butts, Carter T. and Carley, Kathleen M. (2005). Some Simple Algorithms for Graph Comparison. *Computational and Mathematical Organization Theory*. In press.

Butts, Carter T. and Rode, David C. (2005). Rational and Empirical Play in the Simple Hot Potato Game. *Social Forces*. In press.

### **Charles Chubb**

Chubb, C., Y. Inagaki, C. Cotman, B. Cummings, P. C.-Y. Sheu. 2004. Semantic biological image management and analysis. *International Journal on Artificial Intelligence Tools*, **13** (4), 881 – 896.

Victor, J. D., C. Chubb, M. M. Conte. 2005. Interaction of luminance and higher order statistics in texture discrimination. *Vision Research*, **45** (3), 311-328.

Solomon, J.A., C. Chubb, A. John, M. J. Morgan. Stimulus contrast and the Reichardt detector. *Vision Research*. In press

Chubb, C., Inagaki, Y., Sheu, P. C.-Y., Cummings, B., Wasserman, A., Head, E. & Cotman, C. BioVision: An Application for the Automated Image Analysis of Histological Sections. *Neurobiology of Aging* (accepted, pending minor revisions).

### **deFigueiredo**

B. M. Lee and Rui J. P. de Figueiredo. Adaptive Pre-Distorters for Linearization of High Power Amplifiers in OFDM Wireless Communications. *Circuits, Systems, and Signal Processing*. In press.

Rui J. P. de Figueiredo and B. M. Lee. (2004). A New Pre-Distortion Approach to TWTA Compensation for Wireless OFDM Systems. (*Invited Paper*), *Proc. of the 2nd. IEEE International Conf. on Circuits and Systems for Communications (ICCSC-2004)*, Moscow, Russia, June 30 - July 2, 2004. (*Invited Plenary Lecture Paper*).

B. M. Lee and Rui J. P. de Figueiredo. (2004). Enhanced V-BLAST Performance in MIMO Wireless Communication Systems. *Proc. of the 2nd. IEEE International. Conference on Circuits and Systems for Communications (ICCSC-2004)*, Moscow, Russia, June 30 - July 2, 2004.

Rui. J. P. de Figueiredo and Lin Fang. (2005). Adaptive Input-Power Processing for Mitigation of PAPR in OFDM. (*Invited Paper*), *Proc. of the 2005 IEEE Emerging Technologies Workshop on the theme "Circuits and Systems for 4G Mobile Wireless communications"*, St. Petersburg, Russia, June 23-24, 2005.

Rui J. P. de Figueiredo. (2005). The Role of the RKH Space F in the Analysis and Design of Recurrent Neural Networks" (*Invited Paper*) in the Proc. of the 2005 Joint International Conference on Neural Networks (IJCNN 2005), pp. 1473-1478, Montreal , Canada, July 31-Aug 4, 2005.

### **Katherine Faust**

Faust, Katherine. 2005. Using Correspondence Analysis for Joint Displays of Affiliation Networks. Chapter 7, pages 117-147 in *Models and Methods in Social Network Analysis*, edited by Peter J. Carrington, John Scott, and Stanley Wasserman. New York: Cambridge University Press.

Rindfuss, Ronald R., Aree Jampaklay, Barbara Entwisle, Yothin Sawangdee, Katherine Faust, and Pramote Prasartkul. The Collection and Analysis of Social Network Data in Nang Rong, Thailand. Chapter 7, pages 175-200 in *Network Epidemiology: A Handbook For Survey Design and Data Collection*. Martina Morris (ed.). Oxford: Oxford University Press.

### **Lin Freeman**

Linton C. Freeman. (2004). *The Development of Social Network Analysis: A Study in the Sociology of Science*. Vancouver, B. C.: Empirical Press

Linton C. Freeman. (2005). Graphic techniques for exploring social network data. Pp. 248-269 in Peter J. Carrington, John Scott and Stanley Wasserman (eds.) *Models and Methods in Social Network Analysis*. Cambridge: Cambridge University Press

### **Michele Garfinkel**

Garfinkel, M. Stable alliance formation in distributional conflict (2004). *European Journal of Political Economy* Vol. 20, 829-852.

Garfinkel, M. (2004). Comment on 'The macroeconomic consequences of terrorism, *Journal of Monetary Economics*, Vol. 51, 1033-1037.

### **Amihai Glazer**

Jack Hirshleifer, Amihai Glazer, and David Hirshleifer. *Price Theory and Applications*, 7th edition. Cambridge University Press. In press.

Amihai Glazer and Lawrence Rothenberg. (2004). *Why Government Succeeds and Why It Fails*. Japanese translation, Tokyo: Iwanami Shoten.

Amihai Glazer. Rewarding Political Supporters. *Public Choice*. In press.

Glazer, Amihai. Social security and conflict within the family. *Journal of Population Economics*. In press.

### **Bernard Grofman**

Adams, J., Merrill, S. and Grofman, B. (2005). *A Unified Theory of Party Competition: A Cross-National Analysis Integrating Spatial and Behavioral Factors*. New York: Cambridge University Press.

Regenwetter, M., Grofman, B., Marley, A.A.J. and Tsetlin, I. *Behavioral Social Choice: Probabilistic Models, Statistical Inference, and Applications*. New York: Cambridge University Press. In press.

Grofman, B., Chiaramonte, A., D'Alimonte, R. and Feld, S. L. (2004). Comparing and contrasting the uses of two graphical tools for displaying patterns of multi-party competition: Nagayama diagrams and simplex representations. *Party Politics*, 10(3):273-299.

Grofman, B. (2004). Reflections on Public Choice. *Public Choice* 118:31-51.

Grofman, B. and Merrill, S. III. (2004). Ecological regression and ecological inference. In Gary King, Ori Rosen and Martin Tanner (eds.) *Ecological Inference: New Methodological Strategies*. New York: Cambridge University Press, pp. 123-143.

Grofman, B. and Merrill, S. III. (2004). Anticipating Likely Consequences of Lottery-Based Affirmative Action. *Social Science Quarterly*, 85(5): 1447-1468.

Grofman, B.. (2004). Downs and two-party convergence. In Polsby, N. (ed.) *Annual Review of Political Science*, 7:25-46.

Grofman, B. and Brunell, T. The art of the Dummymander: The Impact of Recent Redistrictings on the Partisan Makeup of Southern House Seats. In Galderisi, Peter (Ed.) *Redistricting in the New*

*Millennium*. In press.

Fraenkel, J. and Grofman, B. (2004). A Neo-Downsian model of the alternate vote as a mechanism for mitigating ethnic conflict in plural societies. *Public Choice*, 121:487-506.

O'Leary, B., Grofman, B. and Elklit, G. (2005). Divisor methods for sequential portfolio allocation in multi-party executive bodies: evidence from Northern Ireland and Denmark.. *American Journal of Political Science* 49(1), 198-211.

Grofman, B.. Race and redistricting in the 21<sup>st</sup> century. In Gary M. Segura, and Shaun Bowler (eds) *Diversity in Democracy: Minority Representation in the United States*. Charlottesville: University of Virginia Press. In press.

Fraenkel, J. and Grofman, B. Does the Alternative Vote Foster Moderation in Ethnically Divided Societies? The Case of Fiji. *Comparative Political Studies*. In press.

Owen, G. and Grofman, B. Two-Stage Electoral Competition in Two-Party Contests: Persistent Divergence of Party Positions. *Social Choice and Welfare*. In press.

Adams, J., Merrill, S. III and Grofman, B. Does France's Two-Ballot Presidential Election System Alter Candidates' Policy Strategies? A Spatial Analysis of Office-Seeking Candidates in the 1988 Presidential Election. *French Politics*. In press.

Grofman, B. and Feld, S.L. (2004). If you like the alternative vote (a.k.a. the instant runoff) then you ought to know about the Coombs Rule. *Electoral Studies* 23:641-659.

Grofman, B. (2004). Rein Taagepera's approach to the study of electoral systems. *Journal of Baltic Studies* 35(2): 167-185.

Johnston, J. P., Ray, L., Feld, S. and Grofman, B. (2004). The Impacts of Voting Rules on Acceding EU Member States. *Rivista di Politica Economica*, #VII-VIII (year XCIV, 3<sup>rd</sup> series pp. 105-120.

Grofman, B. and Feld, S. Thinking About the Political Impacts of the Electoral College. *Public Choice*. In press.

Grofman, B. (2004). A curmudgeon's view of the EMU. In Guiseppe Eusepi and Friedrich Schneider (eds.) *Changing Institutions in the European Union: A Public Choice Perspective*, New York: Edward Elgar.

Grofman, B. (2004). The prospects of electoral reform (foreword). In Josep Colomer (ed.), *Handbook of Electoral System Choice*. New York: Palgrave-Macmillan, pp. xi-xx.

Grofman, B. Comparisons among electoral systems: Distinguishing between localism and candidate-centered politics. *Electoral Studies*. In press.

Grofman, B. (2005). Ph.D.s Without Borders? Drawing Subdisciplinary Boundaries in Political

Science. *APSA Comparative Politics Section Newsletter*, 16(1): 8-11.

Grofman, B. Contribution and Spending Limits for Initiatives or Other Ballot Propositions: What Evidence is Needed to Justify a Particular Regulatory Regime? *Southern California Law Review*, 78: 101-110.

Gray, M. M. and Grofman, B. Vindicating Anthony Downs. *Political Science*. In press.

Lewis-Beck, M. and Grofman, B. Introduction to Minisymposium on French Double Ballot Elections. *French Politics*. In press.

### **Donald Hoffman**

Hoffman, D. Visual illusions and perception. (2005) McGraw-Hill *Yearbook of Science & Technology*,

Hoffman, D. Images as interstellar messages. *Between worlds: The art and science of interstellar message composition*. Doug Vakoch (Ed.) Cambridge: MIT Press. In press.

Hofofman, D. The Scrambling Theorem: A simple proof of the logical possibility of spectrum inversion. *Consciousness and Cognition*. In press

Hoffman, D. Sensory experiences as cryptic symbols of a multi-modal user interface. *Kunst und Kognition*. In press.

### **Tarow Indow**

A. K. Romney, R. G .D' Andrade, and T. Indow. The distribution of response spectra in the lateral geniculate nucleus compared with reflectance spectra of Munsell color chips. *Proceedings of the National Academy of Science of the United States of America*. In press.

### **Geoff Iverson**

Myung, J. I., Karabatsos, G. & Iverson, G. J. (2005). A Bayesian Approach to Testing Decision Making Axioms. *Journal of Mathematical Psychology*, 49 (3), 205-225.

Iverson, G., Myung, J. I., & Karabatsos, G. (2005) Intransitivity of Preference: Revisited. Submitted to *Psychological Review*.

Iverson, G. (2005). Analytical Methods in the Theory of Psychophysical Discrimination. I: Inequalities, Convexity and Integration of Just Noticeable Differences. *Journal of Mathematical Psychology*. In press.

Iverson, G. (2005). Analytical Methods in the Theory of Psychophysical Discrimination. II: Analytical Methods in the Theory of Psychophysical Discrimination II: The Near-Miss to Weber's Law,

Falmagne's Law, the Psychophysical Power Law and the Law of Similarity. *Journal of Mathematical Psychology*. In press.

Iverson, G. (2005). Essay: Order-Restricted Inference. Submitted to the *Journal of Mathematical Psychology* (under revision).

### **Marek Kaminski**

Gry wi zienne (Polish translation of the book "Games Prisoners Play"), Oficyna Naukowa, Warsaw, translated by the author and expanded by 20%.

Kaminski, M. General Equilibrium Model of Multiparty Competition. *Social Choice and Welfare*. In press.

Kaminski, M. Parametric Rationing Methods. *Games and Economic Behavior* (Polish translation). In press by Decyzje.

Kaminski, M. Social Choice and Information: Informational Structure of Uniqueness Theorems in the Social Sciences, *Mathematical Social Sciences*, 2004 48: 121-138.

Kaminski, M. Gry wini uot (Polish translation of an article from *Rationality and Society*, 2003 15(2): 188-217, *Studia Socjologiczne* 2004, 3: 141-70.

Kaminski, M. Do Parties Benefit from Electoral Manipulation" (Russian translation of an article from *Journal of Theoretical Politics*, 2002 14/3: 325-359), \_

### **Robin Keller**

Joanna L. Ho, L. Robin Keller, and Pamela Keltyka. (2005). How Do Information Ambiguity and Timing of Contextual Information Affect Managers' Goal Congruence in Making Investment Decisions in Good Times vs. Bad Times? *Journal of Risk and Uncertainty*. In press.

### **Natalia Komarova**

Wodarz, D and Komarova, N.L. (2005). Computational biology of cancer: lecture notes and mathematical modeling, *World Scientific*.

Komarova, N.L. (2005). Cancer, aging and the optimal tissue design. *Cancer Biology*. In press.

Komarova, N.L. (2005). Spatial stochastic models of cancer initiation and progression. *Bulletin of Mathematical Biology*. In press.

Komarova, N.L. & Wodarz, D. (2005). Drug resistance in cancer: principles of emergence and prevention. *Proceedings of the National Academy of Science*, 102 (27), pp. 9714-9.

Komarova, N.L. & Soffer, A. (2005). Nonlinear waves in double-stranded DNA. *Bulletin of Mathematical Biology*, 67(4), pp. 701-718.



Komarova, N.L. & Mironov, V. (2005). On the role of endothelial progenitor cells in tumor neovascularization. *Journal of Theoretical Biology* 235 (3), pp. 338-49

Komarova, N.L. (2005). Mathematical modeling of tumorigenesis: mission possible. *Current Oncology* 17(1), pp. 39-43.

Iwasa, Y., Michor, F., Komarova, N.L. and Nowak, M. (2005). Population genetics of tumor suppressor genes. *Journal of Theoretical Biology* 233 pp. 15-23.

Wodarz, D., Iwasa, Y., and Komarova, N.L. (2004). On the emergence of multifocal cancers. *Journal of Carcinogenesis* 3(1) 13.

### **Igor Kopylov**

Kopylov, I. Subjective Probability on 'Small Domains'. Submitted to *Journal of Economic Theory*.

### **Vladimir Lefebvre**

Lefebvre, V. (2004). Bipolarity, Choice, and Entro-Field. PROCEEDINGS. The 8th World Multi-Conference on Systemics, Cybernetics and Informatics. Vol. IV, 95-99.

Lefebvre, V. (2005). The Cosmic Subject, in Russian, third enlarged edition, Moscow: Cogito-Centre.

### **R. Duncan Luce**

Luce, R. D. & Marley, A. A. J. (2005). Ranked additive utility representations of gambles: Old and new axiomatizations. *Journal of Risk and Uncertainty*, 30, 21-62.

Luce, R.D., & Steingrimsson, R. (2005). Global psychophysical judgments of intensity: Summary of a theory and experiments. In H. Colonious & E. Dzhharfov (Eds.) *Measurement and Representations of Sensations*. Mahwah, NJ: Erlbaum. In press.

Luce, R.D. (2005). Measurement analogies: Comparisons of behavioral and physical measures. *Psychometrika*. In press.

Luce, R.D., Ng, C. T., Aczél, J., & Marley, A. A. J. (2005). Merging Savage and Shannon: Entropy-modified linear additive weighted utility. In preparation.

Marley, A. A. J. & Luce, R. D. (2005). Independence properties vis-à-vis several utility representations. *Theory and Decision*. In press.

Ng, C. T., Luce, R.D., & Marley, A. A. J. (2005). On the utility of gambling: Extending the Approach of Meginniss. In preparation.

Steingrímsson, R., & Luce, R.D. (2005a). Evaluating a model of global psychophysical judgments I: Behavioral properties of summations and productions. *Journal of Mathematical Psychology*. In press.

Steingrímsson, R., & Luce, R.D. (2005b). Evaluating a model of global psychophysical judgments II: Behavioral properties linking summations and productions. *Journal of Mathematical Psychology*. In Press.

Steingrímsson, R., & Luce (2005c). Evaluating a model of global psychophysical judgments III: A form for the psychophysical and perceptual filtering. Submitted.

Steingrímsson, R., & Luce (2005d). Evaluating a model of global psychophysical judgments IV: Forms for the weighting function. In preparation.

### **Penelope Maddy**

Maddy, P. Three forms of naturalism, in S. Shapiro, ed., *Oxford Handbook of Philosophy of Mathematics and Logic* (Oxford: Oxford University Press, 2005), pp. 437-459.

Maddy, P. Second Philosophy, *Journal of the Indian Council of Philosophical Research* 20 (2003), pp. 73-106. Despite the date, this paper actually appeared this year.

Maddy, P. Mathematical Existence, to appear in the *Bulletin of Symbolic Logic*.

### **McBride**

McBride, M. Incomplete Monitoring in Communication Networks. *Journal of Economic Theory*. In press.

McBride, M. Crises, Reforms, and Regime Persistence in sub-Saharan Africa. *European Journal of Political Economy*. In press.

### **Anthony McGann**

Major, S. and McGann, A. Caught in the Crossfire: 'Innocent Bystanders' as Optimal Targets of Economic Sanctions. *Journal of Conflict Resolution*, 49.3: 337-59 2005.

Latner, M. and McGann, A. Geographical Representation Under Proportional Representation: The Cases of Israel and the Netherlands. *Electoral Studies*, 24.4. In press.

### **Dale Poirier**

Bayesian Variants of Some Classical Semiparametric Regression Techniques (with Gary Koop) (2004). *Journal of Econometrics*, Vol. 123, 259-282.

Empirical Bayesian Inference in a Nonparametric Regression Models (with Gary Koop). A. C. Harvey, S. J. Koopman, and N. Shephard, eds., *State Space and Unobserved Component Models: Theory and Applications*. Cambridge: Cambridge University Press, 2004, 152-170.

Bayesian Econometrics (with Justin Tobias), *Palgrave Handbook of Econometrics*. In press.

### **Kim Romney**

Romney, A. Kimball, D'Andrade, R. G. and Indow, T. (2005). The distribution of response spectra in the lateral geniculate nucleus compared with reflectance spectra of Munsell color chips. *Proceedings of the National Academy of Sciences*. 102:9720-9725.

Shankle, W., Romney, A.K., Hara, J. Fortier, D., Dick, M., Chen, J.M., Chan, T. and Sun, X. Methods to improve the detection of mild cognitive impairment. *Proceedings of the National Academy of Science*. 102:4919-4924.

Munrow, R. L. and Romney, A.K. (2005). Gender and age differences in same-sex aggregation and social behavior. *Journal of Cross-Cultural Research*. In press.

Burton, M. L., Moore, C.C. and Romney, A.K. (2005). Language families and social structure. Submitted to *American Anthropology*.

Strashny, A., Batchelder, W. H., and Romney, A.K. (2005). A cultural consensus model for aggregating continuous responses in a finite interval. Submitted to *Journal of Mathematical Psychology*.

Romney, A. K., D'Andrade, R. G., Indow, T. (2005). The distribution of response spectra in the lateral geniculate nucleus compared with reflectance spectra of Munsell color chips. *Proceedings of the National Academy of Science*, Vol. 102, no. 27, 9720–9725. (See Commentary by Conway and Livingstone in PNAS).

### **Donald Saari**

Are part wise comparisons reliable? (with K.Sieberg). *Research in Engineering Design*. 2004, 15, 62-71.

Analyzing Pairwise Voting Rules. In *Reasoned Choices*, ed. M. Wiberg, Finnish Political Science Association, Turku, Finland, pp 318-342, 2004.

Saari, D. (2005). The Profile Structure for Luce's Choice Axiom, *Journal Mathematical Psychology*, 49 226-253.

Saari, D. Which is better, the Condorcet or Borda winner? *Social Choice & Welfare* . In press.

A toolkit for voting theory. *Handbook of Political Economy*, D. Wittman and B. Weingast, Oxford University Press. In press.

Negative Externalities and Sen's Liberalism Theorem. (With A. Petron) . *Economic Theory*, electronic version published June, 2005. In press.

Modeling complexity in Mathematics Education, in E. Kelly and R. Lesh, *Design of Experiments in Education*. In press.

Fundamentals and Implications of Decision Making. *Decision Making in Engineering Design*, ASME Press, ed., W. Chen, K. Lewis, L. Schmidt. In press.

*Collisions, Rings, and Other Newtonian N-Body Problems*. (2005). American Math Society, Providence RI, May, 2005

*On Evaluating Curricular Effectiveness: Judging the Quality of K-12 Mathematics Evaluations*, Jointly authored NRC report, National Academy Press, Oct. 2004.

### **Stergios Skaperdas**

Castillo, R. A. and Skaperdas, S. All in the Family or Public? Law and Appropriative Costs as Determinants of Ownership Structure. *Economics of Governance*. In press.

Skaperdas, S. Anarchy. *Oxford Handbook of Political Economy*, edited by Barry Weingast and Donald Wittman, Oxford University Press. In press.

### **Brian Skyrms**

Time to Absorption in Discounted Reinforcement Models, (with Robin Pemantle). *Stochastic Processes and Applications* 109 (2004) 1-12.

Network Formation by Reinforcement Learning: the Long and the Medium Run, (with Robin Pemantle). *Mathematical Social Sciences* 48 (2004) 315-327

Skyrms, B. Discovering 'Weight, or the Value of Knowledge'. Cambridge and Vienna-Frank P. Ramsey and the Skyrms, B. Vienna Circle Kluwer:Dordrecht. In press..

Skyrms, B. Learning to Network (with Robin Pemantle). *Probability in Science*. Ed. E. Eells and J. Fetzer. Open Court Publishing. In press.

Skyrms, B. Dynamics of Conformist Bias. *Monist*. In press.

Skyrms, B. Diachronic Coherence and Probability Kinematics. *Philosophy of Science*. In press.

Skyrms, B. Trust, Risk, and the Social Contract. Forthcoming in *Social Software*, ed. Vincent Hendricks and Stig Andur Pederson. Springer Verlag.

### **Kenneth Small**

Parry, I. and Small, K. A. Does Britain or The United States Have the Right Gasoline Tax? *American Economic Review*. In press.

Brownstone, D. and Small, K. A. Valuing Time and Reliability: Assessing the Evidence from Road Pricing Demonstrations,” *Transportation Research Part A*. In press.

French version published as: “L’évaluation du temps et de la fiabilité: Résultats issus des études de tarification routière,” in André de Palma and Emile Quinet, eds., *La Tarification des Transports, Pourquoi? Pour Qui?: Les défis d’aujourd’hui et de demain (Transport Pricing, Why? For Whom?: Challenges for Today and Tomorrow)*, Paris: *Economica*, 2004.

Small, K. A., Winston, C. and Yan, J. Uncovering the Distribution of Motorists' Preferences for Travel Time and Reliability,” *Econometrica*. In press.

Small, K. A. Road Pricing and Public Transit: Unnoticed Lessons from London. *Access*, publication of University of California Transportation Center, No. 26 (Spring 2005). In press.

Small, K. A.. Road Pricing and Public Transport. In Georgina Santos, ed., *Research in Transport Economics, Vol. 9: Road Pricing: Theory and Evidence*, Elsevier (2004), pp. 133-158.

Small, K. A. “Urban Transportation. In David R. Henderson, editor, *Concise Encyclopedia of Economics*, 2nd edition, Library of Economics and Liberty (on-line). Indianapolis: Liberty Fund First edition of encyclopedia at: <http://www.econlib.org/library/CEE.html>. In press.

## **Padhraic Smyth**

K. K. Lin, D. Chudova, P. Smyth, and B. Andersen. 2004. Identification of hair cycle-associated genes from time-course gene expression profile data by using replicate variance, *Proceedings of the National Academy of Sciences*, 101:15955—15960.

A. Robertson, S. Kirshner, and P. Smyth. 2004. Hidden Markov models for modeling daily rainfall occurrence over Brazil, *Journal of Climate*, 17(22):4407-4424.

S. White and P. Smyth. 2005. A spectral clustering approach to finding communities in graphs, in *Proceedings of the SIAM International Conference on Data Mining*, Newport Beach, CA, SIAM Press.

S. Gaffney and P. Smyth 2005. Joint probabilistic curve-clustering and alignment, in *Advances in Neural Information Processing 17 (Proceedings of the 2004 Conference)*, MIT Press. In press.

M. Steyvers, P. Smyth, M. Rosen-Zvi, and T. Griffiths. 2004. Probabilistic author-topic models for information discovery, in *Proceedings of the Tenth ACM International Conference on Knowledge Discovery and Data Mining*, New York: ACM Press, pp. 306-315.

M. Rosen-Zvi, T. Griffiths, M. Steyvers, and P. Smyth. 2004. The author-topic model for authors and documents, in *Proceedings of the 20th International Conference on Uncertainty in AI*, ACM International Conference Proceeding Series, pp. 487—494.

S. Kim, P. Smyth, and S. Luther. 2004. Modeling waveform shapes with random effects segmental hidden Markov models, in *Proceedings of the 20th International Conference on Uncertainty in AI*, ACM International Conference Proceeding Series, pp. 309—316.

S. Kirshner, P. Smyth, and A. Robertson. 2004. Conditional Chow-Liu tree structures for modeling discrete-valued vector time series, in *Proceedings of the 20th International Conference on Uncertainty in AI*, ACM International Conference Proceeding Series, pp. 317—324.

### **George Sperling**

Sperling, G. and Hsu, A. (2004). Revisiting the Lincoln Picture Problem [Abstract]. *Journal of Vision*, 4 (8), 53a.

Chubb, C., Landy, M., Nam, J.-H., Bindman, D. R., Sperling, G. (2004). The three dimensions for encoding contrast in simple textures [Abstract]. *Journal of Vision*, 4 (8), 713a.

Sperling, G., Wurst, S. A., & Lu, Z.-L. (2004). Measuring the efficiency of attentional filtering [Abstract]. *Perception*, 33, 5.

Sperling, G., Gobell, J., Tseng, C.-h. (2004). Random-dot stereograms, dipoles, and motion standstill [Abstract]. *Perception*, 33, 29-30.

Tseng, C.-h., Gobell, J., & Sperling, G. (2004). Movement of isoluminant red-green gratings and of random-dot stereo depth gratings is perceived by the same salience motion-perception mechanism [Abstract]. *Perception*, 33, 154.

### **Ramesh Srinivasan**

Srinivasan, R, Petrovic ,S. (2005). MEG phase follows conscious perception during binocular rivalry induced by visual stream segregation. *Cerebral Cortex*. In press.

Srinivasan, R. Bibi ,FA, Nunez, P.L. (2005). Steady-state visual evoked potentials: distributed local sources and wave-like dynamics are sensitive to flicker frequency. *Brain Topography*, in press

Ding, J, Sperling, G, Srinivasan, R. (2005). SSVEP power modulation by attention depends on the network tagged by the flicker frequency, *Cerebral Cortex*. In press.

### **Hal Stern**

Peck, R., Casella, G., Cobb, G., Hoerl, R., Nolan, D., Starbuck, R., Stern, H. (Editors). (2005). *Statistics: A Guide to the Unknown*, 4<sup>th</sup> edition, Thomson/Brooks Cole: Belmont, CA.

Stern, H. S. (2004). Statistics and the College Football Championship. *The American Statistician*, Vol. 58, pp. 179-185, 194-195 (with discussion).

Stern, H. S., and Jeon, Y. (2004). Applying Structural Equation Models with Incomplete Data. In *Applied Bayesian Modeling and Causal Inference from Incomplete-Data Perspectives*, eds. A. Gelman and X-L Meng, John Wiley and Sons: Chichester, UK, pp. 331-342.

Zhang, H. and Stern, H. (2005). Investigation of a Generalized Multinomial Model for Species Data. *Journal of Statistical Computation and Simulation*, Vol. 75, No. 5, pp. 347-362.

Stern, H. (2005). Baseball Decision Making By the Numbers. In *Statistics: A Guide to the Unknown, 4<sup>th</sup> edition*, eds. R. Peck, G. Casella, G. Cobb, R. Hoerl, D. Nolan, R. Starbuck, H. Stern, pp. 393-406.

Sinharay, S. and Stern, H. S. An Empirical Comparison of Methods for Computing Bayes Factors in Generalized Linear Mixed Models," *Journal of Computational and Graphical Statistics*, Vol. 14, No. 2, pp. 1-21. In press.

### **Mark Steyvers**

Wagenmakers, E.-J., Zeelenberg, R., Steyvers, M., Shiffrin, R. M., and Raaijmakers, J. G. W. Nonword repetition in lexical decision: Evidence for two opposing processes. *The Quarterly Journal of Experimental Psychology A*. In press.

Steyvers, M., and Tenenbaum, J.B. (2005). Graph Theoretic Analyses of Semantic Networks: Small Worlds in Semantic Networks. *Cognitive Science*, 29, 41-78.

Brown, S.D., & Steyvers, M. The Dynamics of Experimentally Induced Criterion Shifts. *Journal of Experimental Psychology: Learning, Memory & Cognition*. In Press

Navarro, D.J., Griffiths, T.L., Steyvers, M., & Lee, M.D. Modeling individual differences using dirichlet processes. *Journal of Mathematical Psychology*. In press.

Wagenmakers, E.J., Grunwald, P., & Steyvers, M. Accumulative prediction error and the selection of time series models. *Journal of Mathematical Psychology*. In press.

### **Douglas White**

White, D. R. and Johansen, U. (2004). *Network Analysis and Ethnographic Problems: Process Models of a Turkish Nomad Clan*. Walnut Creek, CA. Alta Mira/Lexington. In Press.

Powell, W.W., White, D.R., Koput, K. A. and Owen-Smith, J. (2005). Network Dynamics and Field Evolution: The Growth of Inter-organizational Collaboration in the Life Sciences. *American Journal of Sociology* 110(4):1132-1205.

Denham, W.W., and White, D.R. (2004). Multiple Measures of Alyawarra Kinship. *Field Methods*, 17(1):70-101. Guest edited by Dwight Read.

White, D.R. (2004). Cross-cultural Research: An Introduction for Students. *World Cultures* 14 #2:164-178.

White, D.R. (2004). A Student's Guide to Statistics for Analysis of Cross-Tabulations, *World Cultures* 14#2:179-193.

Owen-Smith, J., Powell, W.W. and White, D.R. (2005). Network Growth and Consolidation: The Effects of Cohesion and Diversity on the Biotechnology Industry Network. Submitted to *Management Science*, Special issue on Complex Systems across Disciplines.

White, D.R., Kejzar, N., Stalls, C., Farmerk D., and White, S. (2005). Network Model for Feedback Circuits. Submitted to *Physic A*.

White, D. R., Kejzar, N., Stalls, C, and Rosenblat, C. (2005). Generative Historical Model of City Size Hierarchies. Submitted to *Structure and Dynamics* eJournal of Anthropological and Related Sciences.

White, D.R. (2005). Conceptual Ethnography: Integrating Disciplinary Practice. Submitted to *Structure and Dynamics* eJournal of Anthropological and Related Sciences.

White, D.R. (2005). Ring Cohesion Theory in Marriage and Social Networks Social Networks special issue (ed.) Alain Degenne. *Mathematiques et sciences humaines* 168:5-28 Journal of the Ecole des Hautes Etudes en Science Sociales, Paris.

Hamberger, K., Houseman, M. D., Daillant, I., White, D.R. and Barry, L. (2005). Matrimonial ring structures Social Networks special issue edited by Alain Degenne. *Mathematiques et sciences humaines* 168:83-121. Journal of the Ecole des Hautes Etudes en Science Sociales, Paris.

## **Zhao**

M. Peternell, H. Pottmann, T. Steiner, H. Zhao. (2005). Computer-Aided Design and Applications, Swept Volumes, Vol. 2, No. 5.

K. Huang, K. Solna, H. Zhao. Coupled Parabolic Equations for Wave Propagation. *Methods and Applications of Analysis*. In press.

Y.Zhang, J.Qian, H. Zhao. High order fast sweeping methods for static Hamilton-Jacobi equations. *Journal of Scientific Computing*. In press.



**APPENDIX C**  
**IMBS TECHNICAL REPORTS, 2004-05**

[MBS 04-12](#)

An affirmative answer to John Locke's question of colour scrambling  
Donald D. Hoffman and Ann K. Carruthers

[MBS 04-13](#)

Computing Core/Periphery Structures and Permutation Tests for Social Relations Data  
John P. Boyd, William J. Fitzgerald and Robert J. Beck

[MBS 04-14](#)

Independence Properties Vis-à-vis Several Utility Representations  
A.A.J. Marley, and R. Duncan Luce

[MBS 04-15](#)

Measurement Analogies: Comparisons of Behavioral and Physical Measures  
R. Duncan Luce

[MBS 04-16](#)

Symmetry, Direct Measurement, and Torgerson's Conjecture  
Louis Narens

MBS 05-01

The Profile Structure for Luce's Choice Axiom  
Donald G. Saari

[MBS 05-02](#)

Permutation Models for Relational Data  
Carter T. Butts

[MBS 05-03](#)

Emergent Coordination in the World Trade Center Disaster  
Miruna Petrescu-Prahova and Carter T. Butts

[MBS 05-04](#)

Radio Communication Networks in the World Trade Center Disaster  
Carter T. Butts and Miruna Petrescu-Prahova

[MBS 05-05](#)

Patterns of Matching and Systems with Internality

Vladimir A. Lefebvre

[MBS 05-06](#)

Sen's Theorem: Geometric Proof and New Interpretations

Lingfang (Ivy) Li and Donald G. Saari

**APPENDIX D**  
**COLLOQUIA AND CONFERENCES OF IMBS MEMBERS, 2004-05<sup>2</sup>**

**William Batchelder**

“What if model selection becomes the metric for scientific acceptance?” Batchelder, W.H. and Smith, J.B. Paper read at Annual Meeting of the Society for Mathematical Psychology, University of Michigan, August, 2004.

“Processing tree modeling as a method of measurement”. Invited symposium talk at the Annual Meeting of the Psychonomic Society, Minneapolis, Minnesota, November, 2004.

“Some variations on the Elo System for rating chess ability”. Invited talk at the Conference “Decision, Sports, and Statistics.” University of California, Irvine, December, 2004.

“Cognitive psychometrics: Cognitive models as measurement tools”. Keynote address at Conference on Cognitive Psychometrics: Cognitive Models as measurement Tools. University of California, Irvine, January, 2005.

“Multinomial models for social information processing. Paper read at Conference”. Batchelder, E. (presenter), and Batchelder, W.H. Cognitive Psychometrics: Cognitive Models as measurement Tools.” University of California, Irvine, January, 2005.

“Animal fluency as an assessment tool: A cross-cultural comparison of performance in normal elderly”. Batchelder, E. (presenter), and Batchelder, W.H. Invited paper read in Symposium on Contemporary Research in Cognitive Anthropology. Annual Meeting of the Society for Anthropological Sciences, Santa Fe, New Mexico, February, 2005.

“Cognitive psychometrics: Cognitive models as measurement tools.” Invited talk, Quantitative Brown Bag, Department of Psychology, Ohio State University, March, 2005.

**Michael Birnbaum**

“New Paradoxes of Risky Decision Making Refute RDU and CPT”. Invited Address, University of Zurich, Switzerland, June, 2004.

“A historical and experimental review of Behavioral Decision Making”. (A 10 hour mini-course) University of Zurich, June, 2004.

“New Paradoxes of Choice”. 11th International Conference on the Foundations and Applications of Utility, Risk and Decision theory (FUR XI). Paris, June 30-July 4, 2004.

---

<sup>2</sup> Those members not listed failed to respond to our request for information.

“A Tax on prospect theory”. Birnbaum, M. H., & Bahra, J. Bayesian Research Conference. Fullerton, CA, January, 2005.

“Neither version of prospect theory is descriptive of risky decision making”. Invited Colloquium, University of California, Riverside. April, 2005.

“A model for analysis of transitivity in noisy choice data. Individual decisions: In honor of R. Duncan Luce's 80th Birthday. University of California, Irvine, May 7, 2005.

“Workshop on SurveyWiz, FactorWiz, and JavaScript. Workshop on Web Research, Nrnberg, Germany, June 3-4., 2005.

“The case against prospect theories. Invited colloquium, University of Hannover, Germany. June 6, 2005.

“The history of Decision Making Research: A short course”, June 9-15, 2005. Two and one half hours per day for five days. University of Kiel, Germany, 2005.

“The new paradoxes of choice and prospect theories”. Invited colloquium, University of Kiel, Germany, June 13, 2005.

“The new paradoxes of choice”. Invited colloquium, University of Linz, Austria, June 20, 2005.

### **John Boyd**

“Computing Core/Periphery Structures and Permutation Tests for Social Relations Data”. With William J. Fitzgerald, and Robert J. Beck. Twenty-fifth Annual International Sunbelt Social Network Conference, Los Angeles. February.

“Irregular equivalence: testing for regularity v. dispersion on clusters of social relations”. With Kai J. Jonas. Twenty-fifth Annual International Sunbelt Social Network Conference, Los Angeles. February 2005.

### **Mike Braunstein**

“The ground dominance effect depends both on the surface and its location in the visual field”. Bian, Z., Braunstein, M. L., & Andersen, G. J. Vision Sciences Society, Sarasota, FL. May 2005.

“Effects of object and background spatial frequency on the perceived shape of a moving object”. Bocheva, N., & Braunstein, M. L. Vision Sciences Society, Sarasota, FL. May 2005.

### **Scott Brown**

“A simple complete model of absolute identification.” S. Brown, A.A.J. Marley & A. Heathcote Presented at the 30th Annual Interdisciplinary Conference, Jackson Hole, Wyoming. 2005.

“Criterion shifts in dynamics models.” M. Steyvers & S. Brown. Presented at 2004 Psychonomic Society Meeting. Minneapolis, Minnesota. 2004.

### **David Brownstone**

“Valuing Time and Reliability: Assessing the Evidence from Road Pricing Demonstrations” (with K. Small). Presented at Department of Economics, University of Southern California, October 2004.

“The Impact of Residential Density on Vehicle Usage and Energy Consumption” (with T. Golob). Presented at Institute of Transportation Studies, UCI, May, 2005.

Presented a paper at Rationalist Approaches to War and Conflict at the Social Science Research Center Berlin (WZB), July 2004.

Presented a paper at the Center for European Integration Studies (ZEI-b), University of Bonn, July 2004.

Presented a paper at the University of California-Riverside, November 2004.

### **Carter Butts**

“Social Networks and the Small World”. Japanese/American Beckman Frontiers of Science Conference (National Academy of Sciences/Japanese Society for Promotion of Science). Irvine, California, December 2004.

“Beyond QAP: Parametric Permutation Models for Relational Data.” Quantitative Methods for Social Science Colloquium, University of California at Santa Barbara. Santa Barbara, California. October 2004).

“Physical Distance and the Structure of Large-Scale Interpersonal Networks”. Geography Department Colloquium, University of California at Santa Barbara. October 2004.

“Emergency Phase Networks During the World Trade Center Disaster” (with Petrescu-Prahova, Miruna and Cross, Remy) Third Joint US-Japan Conference on Mathematical Sociology, Sapporo, Japan, June 2005.

“Responder Communication Networks During the World Trade Center Disaster” (with Petrescu-Prahova, Miruna and Cross, Remy). 25th Sunbelt Network Conference (INSNA), Redondo Beach, CA, February 2005.

“Blogging For Votes: An Examination of the Interaction Between Weblogs and the Electoral Process” (with Cross, Remy). 25th Sunbelt Network Conference (INSNA), Redondo Beach, CA, February 2005.

“Bayesian Inference from Continuously Arriving Informant Reports, with Application to Crisis Response” (with Fabio Leite). ASA Meeting, San Francisco, CA, August, 2004.

“An Exponential Family of Permutation Models for Network Comparison”. IMBS Symposium, Current Research on Network Comparison, Irvine, CA, July 2004.

### **deFigueiredo**

“Neural Network Realizations as Orthogonal Projections in R. K. Hilbert Space of Nonlinear Functionals”, *IEEE Distinguished Lecture* delivered at the Indian Institute of Sciences, Bangalore, India, December 20, 2004

*Same IEEE Distinguished Lecture* delivered at the Indian Institute of Technology (IIT), Delhi, India, January 17, 2005

“Transitioning from a Linear World to a Computationally Intelligent Nonlinear World”, *IEEE Distinguished Lecture delivered at the Indian Institute of Technology (IIT), Powai (Mumbai), India, Feb 7, 2005.*

### **Katherine Faust**

“Network Change At Multiple Levels: Kinship And Helping Ties In Nang Rong, Thailand”. Barbara Entwisle, Katherine Faust, and Ronald Rindfuss. International Sunbelt Social Network Conference XXV, Redondo Beach, February 2005

“Spaced Out: The Spatial Dimensions of Social Networks”. George Tita and Katherine Faust. International Sunbelt Social Network Conference XXV, Redondo Beach, February 2005

### **Amihai Glazer**

“Fair Congestion Tolls”. Kuhmo Conference on Transportation, Kuhmo, Finland

“Optimal Incentive Contracts For a Worker Who Envy His Boss”. Department of Economics, Heidelberg University

“Congestion, Pricing, and Asset Values”. Conference on Congested Networks and Queues, Bonn University

“Trade Protection to Reduce Redistribution”. Public Choice Society Meetings, March 2005.

“Rent Seeking and Bargaining”. Public Choice Society Meetings, March 2005.

### **Bernard Grofman**

“Evaluating the impact of test-score based decisions on differential group success” (with Sam Merrill). Annual Meeting of the Public Choice Society, March 12, 2004, Baltimore, MD and at the European Public Choice Society Annual Meeting, April 16, 2004, Berlin, Germany and at the American Political Science Association Meeting, September 2-5, 2004, Chicago, IL.

“On the Art and Science of Electoral Engineering”. Conference on Democracy in the Twenty-First Century: Prospects and Problems, University of Illinois, Urbana-Champaign, October 2004.

“Statistics and Social Choice: Connections Between Sports and Politics”. University of California, Irvine Institute for Mathematical Sciences Conference on Decisions, Sports, and Statistics” December 4, 2004.

Invited participant and presenter, Conference on Political Culture, Representation and Electoral Systems in The Pacific sponsored by the University of the South Pacific, Port Vila, Vanuatu, July 2004.

“Models of political coalition building”. Invited speaker, Conference on Game Theory and Its Applications, Institute for Mathematical Behavioral Sciences and Center for Decision Analysis, University of California, Irvine, September 2004

“Judging Transitional Justice”. Invited discussant, Conference, Center for the Study of Democracy, University of California, Irvine, October 2004.

“Evaluating Partisan and Other Electoral Consequences of Changes in Congressional Redistricting Practices Since Baker v. Carr” (with Thomas Brunell). Paper presented at the Public Choice Society Annual Meeting, New Orleans, LA, March 2005.

“Conference on Direct Democracy,” Invited discussant. Co-sponsored by the UCI Center for the Study of Democracy, January 2005.

Graduate Student Conference on “Democracy and its Development: 1990-2005.” Invited discussant, UCI Center for the Study of Democracy, February 2005.

### **Donald Hoffman**

“Is Spectrum Inversion Possible?” The Scrambling Lemma. Institute for Mathematical Behavioral Sciences, UC Irvine.

“Visual Intelligence”. Kiel University, Germany.

“Is Spectrum Inversion Possible? The Scrambling Lemma”. Kiel University, Germany.

“Visual Intelligence”. Paderborn University--Hella LLAB Summerschool, Germany.

“Visual Intelligence” . Social Sciences Dinner Club, UCI.

### **Tarow Indow**

“Singular value decomposition of Munsell color samples: Principal hue components”. T. Indow and A.K. Romney. The 10<sup>th</sup> Congress of AIC (International Association of Color Science), Granada, Spain, May 2005.

## **Geoff Iverson**

“Inequalities in Psychophysics: integration of jnds, convexity, and regular variation”. Society for Mathematical Psychology, U. Michigan, Ann Arbor, July 2004.

“Falmagne's Psychophysical Law”. Festschrift for Jean-Claude Falmagne on his 70<sup>th</sup> Birthday: Special Session of the Society for Mathematical Psychology, U. Michigan, Ann Arbor, August 2004.

“A Bayesian Approach to Testing Axioms of Decision Making”, (with Jay. I. Myung & G. Karabatsos). Society for Mathematical Psychology, U. Michigan, Ann Arbor, July 2004.

“A Bayesian Approach to Testing Axioms of Decision Making” (with Jay. I. Myung & G. Karabatsos). Psychonomics, St. Paul, Minnesota, November 2004.

“Order Restricted Inference and Bayesian Model Selection illustrated via Tversky's study of intransitive preference”. The 70<sup>th</sup> Annual Meeting of the Psychometric Society, Tilburg, Netherlands, July 4-9, 2005.

“Symmetric ROCs” . Annual Meetings of the Society for Mathematical Psychology. University of Memphis, August 2005.

## **Marek Kaminski**

“Transitions to Democracy,” Workshop, Greece, Olympia, 7/5-18/2004 (five lectures on "Electoral Manipulation and Transition")

“Parametric Rationing Functions”. Conference on Game Theory and Mathematical Economics, Banach Center, Warsaw, September 2004.

“Games Prisoners Play”. Workshop on Institutionalism, U of California, Berkeley, September 2004; Political Science Colloquium, U of California, Irvine, October 2004, Dept. of Political Science; Division of Social Sciences Seminar, Caltech, Pasadena, March 2005.

“Choice”. London School of Economics, London, May 2005; seminar in sociology, Nuffield College, Oxford, May 2005.

”General Equilibrium Model of Multi-Party Competition”. University of Minnesota, Minneapolis, November 2004; University of California, Berkeley, November 2004.

“Coalitional Stability of Multi-Party Systems: Evidence from Poland”. Seminar in Public Choice, Dept. of Politics, Oxford, May 2005.

“Transitional Justice and the Rule of Law” (with Monika Nalepa): Conference on Judging Transitional Justice, Irvine, October 2004; MPSA Annual Meeting, Chicago, April, 2005.



## **Robin Keller**

“How Decision Analysis Approaches Can Complement Risk Assessments to Improve Environmental Decision Making”. Society for Risk Analysis Annual Meeting, Palm Springs, December 2005.

“Multiple Objective Decision Analysis for Potassium Iodide Distribution in Nuclear Incidents”, with Tianjun Feng and Qiang Zeng, Denver, INFORMS Conference, October 2004.

“Modeling the Effects of Reference Point Dependence on Supplier Selection”, with Tianjun Feng, Denver, INFORMS Conference, presented by Feng, October 2004.

“The Multiobjective Multistakeholder Decision Making Model—Revealing Decision Making as it Happens”, with S. David Barzzer. UCSB Center for Educational Leadership Summer Forum, July 7, 2004.

## **Natalia Komarova**

“Evolution and learning of language”. Workshop on Evolution and Learning of Language. Toyota Technological Institute at Chicago, Spring 2005

“Evolution and learning of language”. Bard High School Early College, New York, Winter 2005

“Evolution and learning of language”. Conference on Complex Systems, Northwestern University, Fall 2004.

## **Igor Kopylov**

“Parametric Model of Ambiguity Aversion”. SSSA Meeting, New Orleans, March 2005

“Subjective Probabilities on ‘Small’ Domains”. University of California, Davis, December 2004

## **Vladimir Lefebvre**

“Boolean Model of Metachoice: An Analysis of Terrorists’ Decision Making”. DIMACS Workshop on Applications of Order Theory to Homeland Defense and Computer Security, Rutgers University, New Jersey, September 27-30, 2004.

## **R. Duncan Luce**

“To Honor L. J. Savage, But Do Avoid His Formulation of the Decision Situation”. Foundations of Utility and Risk XI, Paris France, July, 2004.

“Behavioral Analogues to Classical Physical Measurement”. European Mathematical Psychology Meeting, Ghent, Belgium. September, 2004.

“Was Savage's Formulation of the Decision Problem Too Limiting?” Informs Meeting, Boulder, CO, October, 2004.

“Maybe Savage Got it About Right: Entropy-Modified Subjective Expected Utility”. Bayesian Annual Conference, Fullerton, CA, January, 2005.

“A Characterization Problem”. Meeting of the Canadian Mathematical Society, Waterloo, CA, June 2005.

### **Penelope Maddy**

“Mathematical existence”. Chapel Hill Colloquium, University of North Carolina, October 2004

### **Michael McBride**

“Introduction to game theory”. IMBS Conference on Game Theory and its Applications, UC Irvine, September 2004.

“Conjectural Pairwise Stability: Why Observation Matters in Mutual Consent Networks”. Southwest Economic Theory Conference. UC Riverside, March 2005.

### **Anthony McGann**

“The Calculus of Consensual Democracy”. American Political Science Association Annual Conference. Chicago, IL, September 2-5, 2005.

### **Dale Poirier**

“Bayesian Semiparametric Inference in Multiple Equation Models”. University of New South Wales, Sydney, Australia, July 23, 2004.

“Bayesian Semiparametric Inference in Multiple Equation Models”. University of Melbourne, Melbourne, Australia, August 5, 2004.

“What is in a Word or Two?” Monash University, Clayton, Australia, August 6, 2004.

“Current Issues in Bayesian Econometrics”. Internal Economics Training Program, IMF Institute, International Monetary Fund, Washington D.C., September 13-15, 2004.

### **Donald Saari**

Universite de Caen, Caen, France, Second *Condorcet Lectures* under general title of “Mathematical aspects of social choice,” (2 lectures). “Dethroning Dictators”, “What causes all of those voting and social choice paradoxes?”, November 2004.

“Saarifest” International Conference. CIMAT, Guanajuato, Mexico, (2 lectures). “Mathematical social sciences--an oxymoron?”, “Thoughts about open problems in celestial mechanics”, April 2005

“Eliminating paradoxes and negative economic conclusions”. Conference on Aggregation and disaggregation (collective demand). BIRS, Banff, Canada, May 2005.

“Geometry of Voting”. GEMMA, Universite de Caen, Caen, France, (5 lectures).

“A qualitative approach toward evolutionary game theory.” Conference on Game Theory and its Applications, UCI September 2004.

“What choice theory tells us about sports rankings”. Conference on Decisions, sports, and statistics. IMBS, UC Irvine, November 2004.

“Mathematics is everywhere”. U.S. National Olympiad Ceremonies, NAS, Washington, DC, Guest speaker, June 2005.

DIMAC Conference on Voting and Decisions. Principal speaker (12 lectures of voting theory).

Lake Forest College, (2 lectures). Volwiler Distinguished Science Lecture (Public lecture “Elections! Now that is real Chaos!” Math colloquium “Dethroning Dictators”, September. 2004

Carleton College, Northfield, Minn. (2 lectures). University public lecture “Elections! But do we elect whom we really want?” Mathematics colloquium “A qualitative evolutionary game theory”, October. 2004.

“Evaluating Curricular Effectiveness”. American Mathematical Society, Meeting on education, Washington DC, October 2004.

Dickenson College, Carlisle, PA, (4 lectures). University public lecture (Clark Ctr) “Elections! Do we elect whom we really want?” Prob. and Statistics. “Understanding statistical paradoxes”. Mathematics colloquium., “The evolution of the universe”. Sociology “What choice theory tells us about sociology”, October 2004

“Explaining Arrow's Dictator and all voting paradoxes”. Economics, University of California at Davis. November 2004.

“The evolution of Newton's Universe”. UCI Applied Mathematics, January 2005.

“Mathematics of the social sciences”. UCI Math Club, January 2005.

“The evolving role of mathematics in the social and behavioral sciences”. UCI Distinguished Faculty Research Award, January 2005.

“Elections and decisions can be very chaotic”. University Lecture, Loyola Marymount”, February 2005.

North Georgia State University (2 lectures). University lecture “Chaotic dynamics is all around us”, Mathematics, “Chaotic Politics”, March 2005.

“Dethroning dictators and resolving all voting paradoxes”. Cal Tech, Social Sciences, April 2005.

“Central configurations---a problem for the 21<sup>st</sup> century”. Mathematics, University of Arizona, April 2005.

“Dethroning dictators---and resolving all voting paradoxes.” Economics, University of California, Riverside. April 2005.

### **Stergios Skaperdas**

“Globalization and Domestic Conflict”. Workshop on Polarization and Conflict, EU Network, Konstanz, Germany, June 2005.

“The Market for Protection and the Origin of the State”. Economics Seminar, University of Konstanz, June 1, 2005.

“Globalization and Domestic Conflict”. Economics Seminar, Stockholm School of Economics, April 1, 2005.

“Globalization and Domestic Conflict”. American Economic Association and Peace Science Society International session, Philadelphia, PA, January 2005.

“Globalization and Domestic Conflict”. Workshop on Civil wars, Peace Research Institute of Oslo, presented Norway, December 2004.

“The theory of contests and sports”. Conference on Decisions, Sports, and Statistics, Institute for Mathematical Behavioral Sciences, UC Irvine, December 2004.

“Globalization and Domestic Conflict”. CEPR conference on Crime and Conflict, GREQAM, University of Aix-en-Provence, (also, coauthor presented “The divide et impera principle”) Marseille, October 2004.

“Globalization and Domestic Conflict”. Leitner political economy seminar, Yale University, September 2004

“The theory of contests and applications”. Conference on Game Theory, Institute for Mathematical Behavioral Sciences, UC Irvine, September 2004.

“Globalization and Domestic Conflict”. Conference on Rationalist Approaches to War and Peace, (co-author presented), Berlin, July 2004.

“Globalization and Domestic Conflict”. Conference on Polarization and Conflict, presented early version of EU Network, Oslo, July 2004.

### **Brian Skyrms**

Ludwig Wittgenstein Lectures University of Bayreith (5 lectures), June 6-10 2005

Keynote Address Formal Epistemology Workshop University of Texas, May 27 2005

University of Chicago Conference on Evolution of Language, May 24 2005

University of California, Santa Cruz, May 12 2005

Santa Fe Institute Social Dynamics Workshop, April 7 2005

Conference on Infinite Games University of Bonn, November 26 2004

Philosophy of Science Assn. Meetings (PSA2004) Austin, Texas, November 19 2004

Philosophy, Politics and Economics University of Pennsylvania, November 12 2004

Santa Fe Institute, October 2004

Washington University St. Louis, October 2004

Ohio University, October 2004

Summer School on Game Theory, Ethics and Social Norms (6 lectures) University of Trento, September 2004

### **Kenneth Small**

Member, Expert Panel on Benefit-Cost Analysis and Public Investment in Transit and Highways, organized by the National Research Council for the U.S. General Accounting Office, Washington, D.C., June 2004

Federal Reserve Bank of Chicago, July 2004

University of Southern California, October 2004

Chaired session at Conference on “Taxation and Decentralization,” Center for the Study of Democracy, UC Irvine, Feb. 2005.

### **Padhraic Smyth**

“Graphical Models for Sequential Data Modeling and Forecasting”. IPAM Workshop on Mathematical Issues and Challenges in Data Assimilation for Geophysical Systems: Interdisciplinary Perspectives, February 2005, invited talk.

Author-topic models for large text corpora. Yahoo! Research, Sunnyvale, CA, February 2004, invited seminar.

“What's in the data? using computer science and statistics to search for structure in massive data sets”. Computer Science and Engineering Department, UCSD, November 2004, Frontiers in Computer Science seminar series, invited seminar.

Author-topic models for large text corpora, Computer Science Department, Tufts University, October 2004, invited seminar.

“Learning graphical models from data with applications to climate science”. International Research Institute for Climate Prediction, September 2004, invited seminar.

Author-topic models for large text corpora, Computer Science Department, University of Washington, August 2004, invited seminar.

“Probabilistic author-topic models for data mining of sets of documents”. Department of Information Technology, National University of Ireland, Galway, July 2004, invited seminar.

“Data mining and science”. Workshop on Data Exploration for the Virtual Observatory (SC4DEVO), Caltech, July 2005, invited talk.

### **George Sperling**

“Measuring the efficiency of attentional filtering”. Sperling, G., Wurst, S. A., & Lu, Z.-L. European Conference on Visual Perception, Budapest, Hungary, August 23, 2004.

“Random-dot stereograms, dipoles, and motion standstill”. Sperling, G., Gobell, J., Tseng, C.-h. European Conference on Visual Perception, Budapest, Hungary, August 23, 2004.

“Movement of isoluminant red-green gratings and of random-dot stereo depth gratings is perceived by the same salience motion-perception mechanism”. Tseng, C.-h., Gobell, J., & Sperling, G. European Conference on Visual Perception, Budapest, Hungary, August 23, 2004.

“Cue combination in third-order motion perception”. Sperling, G. Thirtieth Annual Interdisciplinary Conference, Jackson, Wyoming, February 3, 2005.

“Attention-based long-lasting sensitization and suppression of colors”. Tseng, C.-H., Vidnyansky, Z., Papathomas, P., and Sperling, G. Paper presented by C.-H. Tseng. Vision Sciences Society, Sarasota, Florida, May 7, 2005.

“Neuromagnetic responses to first- and second-order motion”. Appelbaum, L. G., Lu, Z-L., and Sperling, G. Paper presented by L. G. Appelbaum. Vision Sciences Society, Sarasota, Florida, May 10, 2005.

### **Hal Stern**

“The Probative Value of Bullet Lead Evidence” (Invited Talk). Joint Statistical Meeting, Toronto, Canada, August 2004,

“Variance Components Analysis of a Multi-Site fMRI Study” (Contributed Talk). Joint Statistical Meetings, Toronto, Canada, August 2004.

“The Bullets Match ... But Who Cares”. Decisions and Justice Conference, Institute for Mathematical Behavioral Sciences, UC Irvine, October 2004,

“What is the Point of the Bowl Championship Series”. Decisions, Sports and Statistics Conference, Institute for Mathematical Behavioral Sciences, UC Irvine, December 2004,

“Forensic Statistics: The Bullets Match ... But Who Care”s. Better Policy Through Statistics: A Symposium in Honor of John Rolph, Costa Mesa, CA

“Forensic Statistics: The Bullets Match ... But Who Cares”. Pittsburgh Chapter of the American Statistical Association, Pittsburgh, PA, April 2005,

“Ancestry Probability Assessment in the Presence of Genotyping Errors”. Bayes, Multivariate Analysis, and CASM: A Statistics Conference in Honor of Jim Press Riverside, CA, May 2005.

“Commencement Address – Give Statistics a Chance”. Department of Statistics, UC Berkeley, May 2005.

### **Mark Steyvers**

Department of Defense, Adelaide, Australia. Defense Science and Technology Organization. Adelaide Mental Life conference. Keynote speaker, May 2005.

University of California, Irvine. Department of Psychology and Social Behavior Colloquium, May 2005.

“Probabilistic Models of Cognition: The Mathematics of Mind”. University of California, Los Angeles. Workshop on at IPAM (Institute for Pure and Applied Mathematics), Jan 2005.

University of Newcastle, Australia. Departmental seminar, Aug 2005.

Workshop on Formal Models in the Study of Natural Language Concepts. University of Leuven, Belgium, Aug 2005.

Third Annual Episodic Memory Symposium. Philadelphia, March 2005.

Thirtieth Annual Interdisciplinary Conference, Teton Village, Jackson Hole, Wyoming, February 2005.

Annual Meeting of the Psychonomic Society, Minneapolis, MN (poster plus spoken presentation).

Annual Meeting of the Society for Mathematical Psychology. Ann Arbor, Michigan, August 2004.

## **Douglas White**

“The uses and practices of genealogy in the human, social and biological sciences”. Plenary Address (prepared, although I was unable to travel to the meeting), 17th Entretiens du Centre Jacques Cartier. Montreal, October, 2004.

“Macromodels - Civilizations as Dynamic Networks”. Society for Anthropological Sciences, Santa Fe meeting, Feb 2005.

“Conceptual Ethnography: Integrating Disciplinary Practice. Society for Anthropological Sciences, Santa Fe meeting, Feb 2005.

“World-System Network Dynamics in the Early Renaissance”. International Network for Social Network Analysis. Redondo Beach meeting, Feb 2005.

“Network Dynamics and Scaling”. Information Society as a Complex System, Third annual meeting. Reggio-Modena, Italy, April 2005.

“Anthropology and Network Analysis: Theory and Four Ethnographic Examples”. Anthropological Science invited seminar, University of Ljubljana, May 2005.

“Network Dynamics of Inter-Organization Collaborations in Biotechnology, 1988-1999”. Invited Lecture, Faculty of Economics and School of Social Science, jointly sponsored. University of Ljubljana, May 24, 2005.

“Power and Profit in Europe and the Near East: Network Dynamics in the Early Renaissance 1175-1500”. Budapest. Invited talk to the Institute for Advanced Study Budapest and the Central European University, 2005.

## **Hong-Kai Zhao**

International Conference on Multiscale Modeling and Scientific Computing. Beijing, China, June 2005.

International Federation for Information Processing (IFIP) conference on Free and Moving Boundaries Analysis, Simulation and Control, Houston, December 2004. .

INTERPHASE 04, Numerical Methods for Free Boundary Problems, Rome, Italy, September 2004..

Institute for Computational and Mathematical Engineering colloquium, Stanford University, February 2005.

Applied Mathematics Seminar. University of Washington, January 2005.

Inverse Problem Seminar. University of Washington, January 2005.

Computational and Applied Mathematics Colloquium. Rice University, December 2005.



**APPENDIX E**  
**FACULTY AWARDS/ACHIEVEMENTS, 2004-05**

**Michael Birnbaum**

Appointed action editor for Management Science.

**Carter Butts**

Division Council Member, California Institute for Telecommunications and Information Technology

Council Member, ASA Section on Mathematical Sociology

**Jean-Claude Falmagne**

Doctor Honoris Causa of the University of Graz

**Michelle Garfinkel**

Editorial Board, Journal of Money, Credit and Banking

Editorial Board, Journal of Macroeconomics

Editorial Board, Journal of Economics and business

Editorial Board, Defence and Economics

Invited to join the editorial board of the European Journal of Political Economy

Served on an external review committee for the Economics Department at Michigan State University.

Served on Nominating Committee for the 2006 election for the Western Economic Association.

**Ami Glazer**

Co-editor, Economics of Governance

Editorial Board, Public Choice

Editorial Board, Finnish Economic Papers.

**Bernard Grofman**

University of California, Irvine Academic Senate Distinguished Faculty Award for Research

**Donald Hoffman**

Who's Who Among America's Teachers, Edition 9, 2004.

Who's Who in America, 2005.

### **Marek Kaminski**

Book "Games Prisoners Play" received the European Academy of Sociology Annual Distinguished Book Award, 2004. Reviews of the book: Publishers Weekly; American Journal of Sociology vol. 111, no 1, 2005; SIAM News, May 2005; Interview for Australian radio, program "The Europeans", 9/8/2004.

### **Robin Keller**

Named an INFORMS Fellow in October 2004, at the Denver INFORMS conference, for major contributions to Operations Research and the Management Sciences. (INFORMS= Institute for Operations Research and the Management Sciences)

### **Natalia Komarova**

Awarded the 2005 Sloan Fellowship

### **Igor Kopylov**

Refereed for *Journal of Economic Theory*, SSH Research Council of Canada

### **Vladimir Lefebvre**

Editorial Board, *Journal of Reflexive Processes and Control*.

### **Duncan Luce**

National Medal of Science (formally awarded in 2003, but actually presented in March, 2005)

### **Donald Saari**

Inducted into the American Academy of Arts in Sciences, October 2004.

Received the UCI Faculty Research Award, February 2005.

Week-long international conference, "Saarifest", on the topics of economics and on celestial mechanics that was held in my honor at the Mathematics Research Institute, Guanajuato Mexico, April 2005.

### **George Sperling**

International Neural Network Society (INNS), Helmholtz Award, 2004. \$500 prize and a plaque.

Editorial Board: *Journal of Vision*

### **Padhraic Smyth**

Appointed to the editorial advisory board of a new journal, *Bayesian Analysis*.

## **Hal Stern**

Appointed Associate Editor, *Bayesian Analysis*

Member, National Academy of Sciences Panel on American Community Survey (summer 2004 – winter 2006)

Chair, American Statistical Association Section on Bayesian Statistical Science (2004)

## **Mark Steyvers**

Courtesy Appointment, Computer Science Department, University of California, Irvine.

Courtesy Appointment, Department of Psychology and Social Behavior, University of California, Irvine.

Elected Fellow for the Society of Experimental Psychologists (SEP)

Early Investigator Award from Society for Experimental Psychologists (SEP)

## **Douglas White**

External Faculty, Santa Fe Institute. Three year appointment.

International Who's Who.

Award Outstanding Article Publication, American Sociology Association, Mathematical Sociology Section, for “Structural Cohesion and Embeddedness: A Hierarchical Concept of Social Groups” which appeared in the *American Sociological Review*, November 2004, 68(1):1-25.

One of three candidates for the Presidency of the Society for Anthropological Sciences chosen by the nominating committee, November 2004.

**APPENDIX F**  
**GRADUATE STUDENTS AFFILIATED WITH IMBS**

**(i) Current Student Participants and their IMBS Advisors**  
(\* advanced to Ph.D. candidacy; \*\* received Ph.D. during year)

<u>Student</u>	<u>Advisor</u>
Susan Anderson	Wright
Amer Aladhad	Saari
** Garrett Asay	Saari
Eric Ayzenshtat	McBride
** Anna Bargagliotti	Saari
* Matthew Barreto	Grofman
Jerry Benzl	Kaminski
* Zheng Bian	Braunstein
James Bono	Saari
Dan Cavagnaro	Falmagne
Chi Chun Chan	McBride
* Maia Cook	Hoffman
John Enschede	McGann
Tianjun "Mike" Feng,	Keller
Ma Ge	D'Zmura
Shaw Gillespie	Braunstein
Fang Hao	McBride
Arvin Hsu	Sperling
Hao Jia	Skaperdas
** Rolf Johnson	Narens
Steven Kies	Chubb
Chunkon Kim	Small
** Jason Kronewetter	Saari
** Fabio Leite	Brown/Falmagne
** Lingfang Li	Saari
Iris Lien	McBride
Yan Mu	Small
* Colleen Nilson	Hoffman
Chen Ng	Small
John Pyles	Hoffman
Qiu, Gand	Skaperdas
Archana Raghunathan	Steyvers
Thomas Richardson	Wright
** Joel Schwarzbart	Boyd
Rory Smead	Skyrms
Kejun Song	Small
Alex Strashny	Batchelder
Jared Smith	Batchelder
Laurent Tambayong	McBride
Amjad Toukan	Skaperdas
** Chia-Huei Tseng	Sperling
Yogesh Uppal	Brownstone
* Jeremy Verlinda	Brownstone

Wei Cung Wang  
Brian Woodcock  
Mike Yi  
Kevin Zollman  
\* Huiying Zhong  
Yi Zhou

Brownstone  
Barrett  
Brown/Iverson  
Skyrms  
Braunstein  
Brownstone

**(ii) MA Degrees in Mathematical Behavioral Science during academic 2004-05**

Anita Charuworn  
Ge Liu  
Sabina Ohri  
Alex Strashny

**APPENDIX G  
CONFERENCES AND WORKSHOPS**

Conference on  
"GAME THEORY AND ITS APPLICATIONS"

SOCIAL SCIENCE PLAZA A --ROOM 2112

SATURDAY, SEPTEMBER 18

- 9:00 – 10:00      **Michael McBride**, Department of Economics, UC Irvine  
"Introduction to game theory"
- 10:30 – 10:45      **BREAK - SSPA 2142**
- 10:45 – 11:45      **Stergios Skaperdas**, Department of Economics, UC Irvine  
"The theory of contests with applications."
- 12:15 – 2:00      LUNCH
- 2:00 – 3:00      **Donald Saari**, Depts. of Economics and Mathematics, UC Irvine  
"A qualitative approach toward evolutionary game theory"
- 3:30 – 3:45      **BREAK - SSPA 2142**
- 3:45 – 4:45      **Bernard Grofman**, Department of Political Science, UC Irvine  
"Models of political coalition building."

**CONFERENCE ON "DECISIONS AND JUSTICE"**  
**October 30, 2004**

**SOCIAL SCIENCE PLAZA A. ROOM 2112**

**BULLET LEAD**

- |               |  |   |
|---------------|--|---|
| 9:00–9:40     | Professor Hal Stern<br>UCI, Dept. of Statistics                          | <i><u>"The Bullets Match...But Who Cares?"</u></i>                                    |
| 9:40 – 10:20  | Professor William Thompson<br>UCI Dept. of Criminology, Law<br>& Society | <i><u>"Assessing the Legal Relevance of<br/>Bullet Lead Evidence: Did the NRC</u></i> |
| 10:20 – 10:30 | Q&A Discussion   |   |
| 10:30 –10:40  | BREAK  |   |

**DNA**

- |               |   |  |
|---------------|---|--|
| 10:40 – 11:20 | Professor William Thompson<br>UCI, Dept. of Criminology,<br>Law and Society           | <i><u>"Evaluating and Explaining the Proba-<br/>tive Value of Forensic DNA Evidence"</u></i> |
| 11:20 – 11:50 | Discussant: Professor Sandy Zabell, Northwestern, Dept. of Mathematics and Statistics |  |
| 11:50 – 12:00 | Q&A Discussion  |  |
| 12:00 - 1:30  | LUNCH   |  |

**FINGERPINTS**

- |             |   |   |
|-------------|---|---|
| 1:30 – 2:10 | Asst. Professor Simon Cole<br>UCI, Dept. of Criminology,<br>Law and Society | <i><u>"Towards Measurement of Fingerprint Accuracy"</u></i> |
| 2:10 - 2:40 | Discussant: Prof. Sandy Zabell, Northwestern, Dept. of Math. & Statistics   |   |
| 2:40 – 2:50 | Q&A Discussion  |   |
| 2:50 – 3:00 | BREAK   |   |

**EYEWITNESS TESTMONY**

- |             |  |   |
|-------------|--|---|
| 3:00 - 3:40 | Distinguished Professor Elizabeth Loftus<br>UCI, Dept. of Criminology, Law and Society | <i><u>"Memory Distortions and False<br/>Memories"</u></i>                               |
| 3:40 – 4:20 | Professor Steven Clark<br>UC Riverside, Dept. of Psychology,                           | <i><u>"Developing a Memory and Decision<br/>Model of Eyewitness Identification"</u></i> |



**CONFERENCE ON DECISIONS, SPORTS AND STATISTICS**  
**DECEMBER 4, 2004**  
*Social Science Plaza A 2112*

**RANKINGS**

9:00- 9:40 **WILLIAM BATCHELDER** *“Some Variations on the Elo System for Rating Chess Ability”*  
UCI, Professor of Cognitive Sciences

9:50-10:30 **SCOTT BERRY** *“Rating Professional Golfers”*  
Berry Consultants

10:40-10:50 **BREAK in SSPA 2142**

10:50-11:30 **DON SAARI** *“From Voting to Judging Sports Events”*  
UCI, Distinguished Professor of Economics  
Mathematics and Director, Institute for  
Mathematical Behavioral Sciences

11:40- 1:00 **LUNCH**

**GAME THEORY**

1:00- 1:40 **SCOTT PAGE** *“General Blotto and Competitive Games”*  
University of Michigan  
Professor of Political Science

1:50- 2:30 **BERNIE GROFMAN** *“Sequencing Effects in Jai-Alai Games and Seeding Effects in Tennis Tournaments”*  
UCI, Professor of Political Sciences

2:40- 3:20 **STERGIOS SKAPERDAS** *“Modeling Contests”*  
UCI, Professor of Economics

3:30- 3:40 **BREAK in SSPA 2142**

**RATINGS & BCS**

3:40- 4:20 **HAL STERN** *“What is the point of the Bowl Championship Series?”*  
UCI, Professor of Statistics

4:30- 5:10 **DAVID HARVILLE** *“Ranking College Football or Basketball Teams: Some Objectives and a Modified Least-Squares Approach”*  
IBM, Researcher Staff Member Emeritus  
Mathematical Sciences Department

Cognitive Psychometrics: Cognitive Models as Measurement Tools--January 28-30, 2004  
Social Science Plaza A2112 and Beckman Center

**Friday, January 28 (SSPA 2112)**

10:00-11:00	<b>William Batchelder</b> UCI, Dept. of Cognitive Sciences	Cognitive Psychometrics, Multinomial Processing Tree (MPT) Models and Cultural Consensus Theory (CCT)
11:00-12:00	<b>Christoph Klauer</b> Univ. of Freiburg, Institut of Psychology	Hierarchical Multinomial Processing Tree Models: A Latent-Class Approach
12:00-1:30	<b>LUNCH</b>	
1:30-2:30	<b>Douglas Medin</b> Northwestern Univ., Dept of Psychology	The CCM as a tool for analyzing cultural processes
2:30-3:30	<b>Roy D'Andrade</b> Univ. of Connecticut, Dept. Anthropology	Free Listing and Latent Semantic Analysis
3:30-4:00	<b>BREAK in SSPA 2142</b>	
4:00-5:00	<b>George Karabatsos</b> University of Illinois at Chicago	Bayesian Cultural Consensus Theory

**Saturday, January 29 (Beckman Center)**

9:00-10:00	<b>Edgar Erdfelder</b> Univ. of Mannheim, Dept. of Psychology	Statistical Tests for Parameterized Multinomial Models: Power Approximation and Power Optimization
10:00-11:00	<b>Xiangen Hu</b> Univ. of Memphis, Dept. of Psychology	GPT Models: Basic Theory, Initial Implementation, and existing issues and challenges
11:00-11:30	<b>BREAK in SSPA 2142</b>	
11:30-12:30	<b>William Dressler</b> Univ. of Alabama, Dept. of Anthropology	Cultural Consonance and Individual Adaptation in Urban Brazil
12:30-2:00	<b>LUNCH</b>	
2:00-3:00	<b>Susan Weller</b> Univ. of Texas, Dept. of Family Medicine	Cross-Cultural Comparisons Using the Cultural Consensus Model
3:00-3:30	<b>David Riefer</b> CSUSB, Dept. of Psychology	Exploring Generation Effects in Source Monitoring: Applying MPT Models for Source Discrimination Across Multiple Source Dimensions
3:30-4:00	<b>Ute Bayen</b> The Univ. of North Carolina at Chapel Hill Dept. of Psychology	A multinomial model of event-based prospective memory
4:00-4:30	<b>BREAK</b>	
4:30-5:00	<b>Ece Batchelder</b> UCI, Institute for Brain Aging and Dementia	Multinomial Models for Social Information Processing
5:00-5:30	<b>Richard Schweickert</b> (w/Shengbao Chen) Purdue Univ., Dept. of Psychology	Constructing a Binary Processing Tree Through Selective Influence (w/Shengbao Chen)

**Sunday, January 30, SSPA 2112**

10:00-10:30	Working Group on Computational needs of Multinomial Processing Tree Models
10:30-12:00	Working Group on Computational needs of Cultural Consensus Theory

**CONFERENCE ON "4-DIMENSIONAL WORLDS"--February 25-26, 2005**  
**Social Science Plaza A 2112**

**Friday, February 25 - (SCIENCE)**

**1:30- 2:20 Davide Cervone**  
**Union College, Dept. of Mathematics**

**"Decomposing the Four-Dimensional Hypercube  
and Hypersphere"**

**2:30- 3:20 Ron Stern**  
**UC Irvine, Dept. of Mathematics**

**"How Mathematicians View Dimension Four"**

**3:30- 3:50 BREAK in SSPA 2142**

**3:50- 4:40 Richard Palais**  
**UC Irvine, Dept. of Mathematics**

**"Time as an Extra Dimension in Mathematical  
Visualization"**

**Friday Evening, February 25 - SSPA 1100**

**6:30- 7:30 Tom Banchoff**  
**Brown Univ., Dept. of Mathematics**

**"Four-Dimensional Worlds: From 'Flatland'  
to Interactive Hypergraphics"**

**Saturday, February 26 - (ART & LITERATURE)**

**9:00- 9:50 Linda Henderson**  
**Univ. of Texas at Austin, Dept. of Art History**

**"The Spatial Fourth Dimension Comes Back in Art  
and Culture, 1950s-2000"**

**10:00-10:50 Tony Robbin**  
**Mathematician, Lecturer, Author**

**"Artistic Strategies for Depicting Four-Dimensional  
Worlds"**

**11:00-11:20 BREAK in SSPA 2142**

**11:20-12:10 William Lindgren**  
**Slippery Rock Univ., Dept. of Mathematics**

**"Some Newly Discovered Dimensions of Flatland"**

**12:30-2:00 LUNCH BREAK**

**Saturday, February 26 - (VISUALIZATION)**

**2:00- 2:50 George Francis**  
**Univ. of Illinois, Urbana-Champaign**  
**Department of Mathematics**

**"Why Some Things Remain Difficult to Do in 4D"**

**3:00- 3:50 Mike D'Zmura**  
**UC Irvine, Dept. of Cognitive Sciences**

**"Navigation in 4D Virtual Environments"**

**4:00- 4:20 BREAK in SSPA 2142**

**4:20- 5:10 Andy Hanson**  
**Univ. of Indiana, Dept. of Computer Sciences**

**"Touching the Fourth Dimension"**

# **The Third Annual Graduate Student Conference Social Choice and Behavioral Sciences**

May 20, 2005  
Social Science Plaza A, room 2112

## Session 1: Chair- Ivy Li

- 9:00 - 9:30 Garrett Asay - “How Ideology Matters in the Spatial Model of Voting”  
9:30 - 10:00 Anna Bargagliotti - “Transforming Data into Voter Profiles”  
10:00 - 10:30 Jason Kronewetter - “Understanding Why Rights Assignments Lead to Cycles”

*Fifteen minute coffee break*

## Session 2: Chair – Anna Bargagliotti

- 10:45 - 11:15 Ivy Li – “The E-Bay Game - How an On-line Market Survives in the Face of Fraud”  
11:15 - 11:45 Amjad Toukan - “Privately Held or Publically Owned? The Role of Debt Financing”  
11:45 - 12:15 James Bono - “High Variance Strategies from a Risk Averse Population”

*Lunch*

## Session 3: Chair – Garrett Asay

- 1:30 – 2:00 I-Hui Hsieh – “Learning Confidence Judgments Based on Stable Criteria”  
2:00 – 2:30 Kenny Vaden – “Density and Phonotactic Effects in the Serial Recall of Pseudowords”  
2:30 – 3:00 Hisaaki Tabuchi – “Measuring the Spatial Frequency Spectrum of Internal Noise in Letter Identification”

*Fifteen minute coffee break*

## Session 4: Chair – Amjad Toukan

- 3:15 – 3:45 Jared Smith – “Assessing Individual and Item Heterogeneity”  
3:45 – 4:15 Amer Aladhad – “A Disaggregated Analysis of Growth Effects of Defense Spending”  
4:15 – 4:45 Yogesh Uppal – “The (Dis)Advantaged Incumbents: Estimating Incumbency Effects in Indian State Legislatures”

**AGENDA**  
**CONFERENCE ON “INDIVIDUAL DECISIONS”**  
**in Honor of R. Duncan Luce’s 80<sup>th</sup> Birthday**

May 6-7, 2005

Social Science Plaza A 2112

Friday, May 6

- |                   |   |   |
|-------------------|---|---|
| <b>1:30-3:00</b>  | <b>Duncan Luce’s Contributions to the University and to Science</b>               | <b>Various Speakers</b>   |
| <b>3:10-4:00</b>  | <b>Detlof von Winterfeldt<br/>USC, School of Policy, Planning and Development</b> | <b>“Duncan Luce and Decision Analysis”</b>                                |
| <b>4:10- 5:00</b> | <b>Mark Machina<br/>UC San Diego, Dept. of Econ.</b>                              | <b>“Las Vegas Risk Preferences Implied by Attitudes Toward Ambiguity”</b> |

Saturday, May 7

- |                    |   |  |
|--------------------|---|--|
| <b>9:00- 9:50</b>  | <b>Charles Plott<br/>Caltech, Humanities and Soc. Sci.</b>    | <b>“System Constraints and Decentralized Optimization: A Mechanism for Optimum Multi-divisional Firm Decisions Under Corporate Average Fuel Economy Regulations”</b> |
| <b>10:00-10:50</b> | <b>Michael Birnbaum</b>                                       | <b>“A Model for analysis of transitivity in noise Cal State Fullerton, Dept. of Psychology Choice data”</b>  |
| <b>11:00-11:20</b> | <b>BREAK in SSPA 2142</b>                                     |  |
| <b>11:20-12:10</b> | <b>Jerome Busemeyer<br/>Indiana Univ. Dept. of Psychology</b> | <b>“Explaining the importance weights used in decision making by attentional processing mechanisms”</b>  |
| <b>12:20-2:30</b>  | <b>LUNCH BREAK</b>  |  |
| <b>2:30- 3:20</b>  | <b>Janos Aczel<br/>Univ. of Waterloo, Dept. of Pure Math.</b> | <b>“Duncan Luce and Functional Equations”</b>  |
| <b>3:30- 3:50</b>  | <b>BREAK in SSPA 2142</b>                                     |  |
| <b>3:50- 4:40</b>  | <b>Louis Narens<br/>UC Irvine, Dept. of Cognitive Sci.</b>    | <b>“Alternative Ways of Representing Human Probability Judgments”</b>  |

**APPENDIX H  
VISITOR LETTERS**

Janós Aczél  
Dept. of Pure Mathematics  
University of Waterloo,  
Waterloo, Ont. N2L 3G1, Canada

June 22, 2005

Dear Don,

Here is the report of my (mathematical) activities during my stay at UCI in 2005:

I discussed several versions of a joint paper with Duncan Luce (and Tony Marley and Che Tat Ng); it is now, not quite finished, more than forty pages long. We discussed also several topics of joint mathematical interest with Jean-Claude Falmagne, two of which we plan to write up in papers.

Wrote four drafts of my talk (delivered at UCI two months later) celebrating Duncan's 80<sup>th</sup> birthday.

Participated in several seminars both in and outside the IMBS.

Kind regards,

Janós Aczél

department of **Mathematical Sciences**

*College of Science & Mathematics at Montclair State University*

August 4, 2005

Professor Donald G. Saari, Director  
Institute for Mathematical Behavioral Sciences  
Social Science Plaza  
University of California Irvine  
Irvine, CA 92697-5100

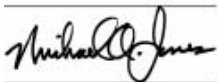
Dear Don,

I wanted to thank you for your and the Institute's hospitality during my November 2004 visit. I found the atmosphere invigorating and enjoyed attending seminars and learning about your and your students' new work in qualitative dynamical systems applied to evolutionary game theory.

While at the Institute, I was able to flesh out the ideas for two papers on how paradoxes of voting power can be classified by their geometry. I presented these papers at the Public Choice Society Meeting (March 2005), Mathematical Association of America New Jersey Section Spring Meeting (March 2005), and the Voting Power and Procedures Programme Workshop (July 2005). Both papers are in preprint stages and will be submitted shortly.

I wanted to again thank you for spending part of my visit preparing for the Reconnect Satellite Conference on Mathematics of Elections and Decisions, organized through DIMACS (Center for Discrete Mathematics and Theoretical Computer Science, Rutgers, New Jersey) and hosted at Montclair. The event was a great success and has led to fruitful collaborations.

Sincerely,



Michael A. Jones  
Department of Mathematical Sciences  
Montclair State University  
Montclair, NJ 07043  
973-881-8928  
jonesm@mail.montclair.edu





**Department of Psychology**  
PO Box 3050 STN CSC  
Victoria British Columbia V8W 3P5 Canada  
Tel (250) 472-4490 Fax (250) 721-8929  
Email [ajmarley@uvic.ca](mailto:ajmarley@uvic.ca)

**University  
of Victoria**

Aug. 30, 05

Professor D. Saari, Director, Institute for Mathematical Behavioral Sciences  
Social Science Plaza  
University of California Irvine  
Irvine, CA  
92697-5100 USA

Dear Don:

I want to thank you personally and the Institute generally for its ongoing encouragement and support. I visited a number of times during the past academic year in the context of my research with Duncan Luce (supported by NSF and the Natural Sciences and Engineering Research Council of Canada) and with Scott Brown (supported by the Natural Sciences and engineering Research Council of Canada). The results of that work are a major paper with Duncan that is In Press with *Theory and Decision*, a paper on utility theory with Duncan (and C. T. Ng.) submitted to *Kybernetika*, and a draft manuscript with Scott Brown (and A. Heathcote) on data and models for absolute identification. Also, I have a completed book with Bernie Grofman (and M. Regenwetter and I. Tsetlin) called *Behavioral Social Choice* that is currently undergoing final editing by Cambridge University Press. Finally, I also gave a talk in the Institute's Colloquium Series about my work with Jordan Louiviere of the University of Technology, Sydney.

Three particularly important feature of my visits to the Institute are: Janet Phelps' attention to my every professional need; the availability of office space, with a networked computer, so that I can continue my work uninterrupted; and stimulating interactions with the many prestigious members of the Institute with research interests in the mathematical social sciences.

A. A. J. Marley  
Adjunct Professor, University of Victoria  
Professor Emeritus, McGill University

K.A. Jameson's **RESEARCH ACTIVITY** since September 2004

**Research Appointments:**

Reappointed 07/01/05 - 06/30/07. Associate Project Scientist III. Center for Research in Language. U.C. San Diego.

Reappointed at IMBS for academic year 09/01/05 - 08/31/06.

-----  
**Appeared in print during 2005** (Previously accepted during 2003-2004):

- (1) Guest Edited Journal Issue: *Cross-Cultural Research*, 39(1). February 2005.
- (2) Guest Edited Journal Issue: *Cross-Cultural Research*, 39(2). May 2005.
- (3) Jameson, K. A. (2005). Introductory remarks on cognition, culture and color Experience. *Cross-Cultural Research*, 39(1), 5-9.
- (4) Jameson, K. A. (2005). The role of Culture in Color Naming Research. *Cross-Cultural Research*, 39(1), 88-106.
- (5) Jameson, K.A. (2005). Why GRUE? An Interpoint--Distance Model analysis of Composite Color Categories. *Cross-Cultural Research*, 39(2), 159-194.
- (6) Alvarado, N. and Jameson, K.A. (2005). Confidence Judgments and Color Category Best Exemplar Salience. *Cross-Cultural Research*, 39(2), 134-158.

-----  
**New Research:**

Sayim, B. Jameson, K.A., Alvarado, N. & Szeszel, M.K. (in press). Semantic and Perceptual Representations of Color: Evidence of a Shared Color-Naming Function. *Journal of Cognition & Culture*, 5, issue 3/4. To appear November 2005.

Jameson, K.A. (in press). Culture & Cognition: What is Universal about the Representation of Color Experience? *Journal of Cognition & Culture*, 5, issue 3/4. To appear November 2005.

Jameson, K.A. (in press). Sharing perceptually grounded categories in uniform and nonuniform populations. Commentary on Steels, L. & Belpaeme, T. (Target Article). Coordinating Perceptually Grounded Categories through Language. A Case Study for Colour. To appear September 2005 in *Behavioral and Brain Sciences*, 28(4).

Jameson, K.A., Bimler, D. & Wasserman, L. M. (submitted). Re-assessing Perceptual Diagnostics for Observers with Diverse Retinal Photopigment Genotypes. Research Article submitted to *Progress in Colour Studies 2: Cognition*. Pitchford, N.J. & Biggam, C.P. (Eds). Amsterdam: John Benjamins Publishing Co. To appear Spring 2006.

**New Abstracts:**

Jameson, K.A., Bimler, D., and L. Wasserman (in press). Color Perception Assessment for Observers With Variable Color Vision Genotypes. Abstract to appear in the Proceedings of the 2005 American Psychological Association meeting. Fall 2005.

Jameson, K.A., Alvarado, N., and B. Sayim (in press). Semantic and Perceptual Representations of Color and a Cognitive Color-Naming Function. Abstract to appear in Proceedings of the 2005 American Psychological Association meeting. Fall 2005.

-----  
**Conference Presentations:**

Jameson, K.A., Bimler, D., and L. Wasserman (2005). Color Perception Assessment for Observers With Variable Color Vision Genotypes. Poster presented at The annual American Psychological Association meeting. May 27, 2005. Los Angeles, California.

Jameson, K.A., Alvarado, N., and B. Sayim (2005). Semantic and Perceptual Representations of Color and a Cognitive Color-Naming Function. Poster presented at The annual American Psychological Association meeting. May 28, 2005. Los Angeles, California.

-----  
**New In-Progress Research:**

Jameson, K.A. (in-progress). Semantic and Perceptual Representations of Color. To be submitted to the Proceedings of the International Society for Psychophysics Meeting 2005.

Jameson, K.A. Structurally representing similarity among color term and color sample stimuli. Manuscript in progress.

-----  
**Invited Contributions:**

Invited to contribute a research article to an edited volume in honor of C. L. Hardin, Department of Philosophy, Syracuse University, N.Y. To be submitted December 2005.

Invited presentation entitled "Semantic and Perceptual Representations of Color" in the Measurement in Perception symposium (Ehtibar Dzhafarov, organizer). October 21<sup>st</sup>, 2005 at the Annual International Society for Psychophysics Meeting.

### **New Academic Service:**

- (1) Guest Editor for Journal of Cognition & Culture. Special Issue on Cognition, Culture and Color Categorization. To appear November 2005.
- (2) Host to IMBS visitor: Zoltan Jakab, Department of Cognitive Science Budapest University of Technology and Economics, Budapest, Hungary. June 24-26, 2005.
- (3) Organizer and Co-Host (with Dept. of Ophthalmology):

### **Color Vision Seminar**

Co-hosts: Institute for Mathematical Behavioral Sciences and the Department of Ophthalmology, UCI.

DATE: Friday, June 24th, 2005.

TITLE 1: Varieties of Tetrachromacy.

SPEAKER: Zoltan Jakab  
Department of Cognitive Science  
Budapest University of Technology and Economics

TITLE 2: Color compensation for Anomalous Trichromats based on Error Scores of FM-100 Hue Test.

SPEAKER: Yong Man Ro, PhD  
Associate Professor  
Information and Communication University, Korea.

(4) Guest Lecture "Philosophy of Color Category Evolution." Social Dynamics Graduate Course. LPS 244: Department of Logic and Philosophy of Science. June 14, 2005.

(5) *Ad Hoc* Reviewer for Proceedings of the Royal Academy journal *Interface*.

(6) *Ad Hoc* Reviewer of Proposal for Research submitted to Social Sciences and Humanities Research Council of Canada. File #: 410-2005-0148.

(7) Peer-commentator for *Behavioral and Brain Sciences*, 28(4). In-press commentary listed above.