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Director’s Statement

Dear Colleagues,

This has been an active and good year for IMBS. As a preview of some of what you will find in this report:

- IMBS organized and/or helped sponsor several well-received conferences and mini-conferences where the topics ranged from evolutionary behavior in the social, behavioral, and even biological sciences to individual decision making.
- We enjoyed a full and active colloquium series throughout the year with topics touching most interests of our members. Through Brian Skyrms, ties were re-established with the UCLA Marschak Lectures where we jointly sponsor certain speakers: they lecture at IMBS on Thursday and UCLA on Friday. As a new feature, each of our weekly colloquia now is followed by a social hour. This has proved successful in creating an informal atmosphere to talk with the speaker and where colleagues from different disciplines can discuss similarities and differences in research—or even the politics of the day.
- IMBS is expanding our membership: we welcome Professors Natalia Komarova and Hongkai Zhao from mathematics, and we are encouraging affiliate members from other universities to become more active.
- Janet Phelps revitalized our webpage (check it out at http://www.imbs.uci.edu), and we are exploring how to attract more attention to your IMBS research reports so they can reach an even wider audience. Be sure to send them in to Janet.
- In January, the IMBS created a new focus research group on “Social Dynamics and Evolution,” chaired by Douglas White: a brief description can be found in Section IV-E. The group has grown impressively: their first meeting in January was held in a conference room, but the attendance grew so quickly, with participation from different UCI schools and other UC campuses, that their weekly sessions needed to be moved to the IMBS conference room. The group has their own webpage and started an ejournal.
- With the guidance and efforts of Louis Narens, our director of graduate studies, we reviewed and made changes to our graduate program. By doing so we tightened up some requirements and, as you will see in Section III, we created a new degree program to reflect changes in research interests. On a competitive basis, IMBS continues to sponsor summer research for graduate students but with a new feature: in the fall we now hold a half-day conference so these students can report their findings to faculty and other students. The conference this year was well received, so last spring we held a general graduate student conference—and we now plan to do this on an annual basis. To facilitate communication with our students and to encourage their participating in IMBS activities, we established a Graduate Advisory Council. Our new program to recruit graduate students is having success.
- The IMBS Executive Committee has been reactivated to provide guidance and a review of our activities.
- As you will see from the report, IMBS members conducted and/or sponsored several weekly discussion groups: this ranges from a long-standing weekly session on
• evolutionary behavior, to one on probability in the social sciences, and even to one on
decision theory and sports!

The heart and sole of any organization comes from its members: this report is
constructed to emphasize and promote what our members have done—through a listing
of their papers, talks, organized conferences, and other activities. Check the Appendices:
it makes interesting reading to see the diversity of topics represented by IMBS members
as described in their published papers and invited talks. A particularly interesting
section, purposely placed near the front of this report, is Sect. II-D: it contains research
summaries of what IMBS members have accomplished this last year. Let me encourage
you to at least skim through these interesting descriptions. If I have any complaint, it is
that in some of the cases what actually was accomplished was far more significant than
suggested by the more modest commentaries.

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. For example,
Carter Butts is on a mega-grant, Duncan Luce’s received, among other recognitions, the
Frank P. Ramsey Medal of Decision Analysis from INFORMS and an Award for
Lifetime Contributions to Psychology, Mark Steyvers received the 2004 American
Psychological Association New Investigator Award, Bernie Grofman was honored
with the Duncan Black Award, Brian Skyrms is the President of the Philosophy of
Science Association, etc.

During the year, a theme for IMBS emerged: IMBS can play a valued role 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, by joining the
expertise of different IMBS members, this coming year we probably will organize an
exploratory weekly discussion group tentatively 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 probably can be done.

The 2003-04 year was a good year for the IMBS; we are anticipating an even better
year for 2004-05! Join in!

Sincerely,
Don Saari
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

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 57 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, Dosher, 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**: 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 138 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 22 technical reports issued during the academic year.

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 215 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

Jeff Barrett

This past year I have been working on two projects:

(a) To describe how one might construct a relativistic hidden-variable quantum field theory. The two puzzles to solve here are (i) how to handle quantum measurement in a way that is compatible with the constraints of relativity and (ii) how to make field quantities determinate. This project led to two papers:

(b) To formulate a logic for statements of the form “Algorithm A outputs a when input b.” Paradoxes are endemic to such a logic, so the main puzzle here is in finding a consistent set of inference rules for the logic. This project led to two papers this year:

Statistical Modeling

Dale Poirier

Over the past year I have been working with Gary Koop of the University of Glasgow and Justin Tobias of UCI on Bayesian variants of classical semiparametric regression techniques for simultaneous equations models. These techniques are both flexible and relatively easy to use. In our paper “Bayesian Semiparametric Inference in Multiple Equation Models” we apply these techniques to investigate the wage returns to schooling in a model where wages and the amount of schooling are both endogenous. Working with a sample of white males drawn from the National Longitudinal Survey of Youth, we find that marginal increments in intellectual ability do little to increase the wages of individuals of low to moderate ability, but do have a reasonable effect on the wages of those with above mean ability. In other words we find increasing returns to ability.

Recently in “What is in a Word or Two?” I measure the impact of Bayesian reasoning by investigating the occurrence of two words, “Bayes” and “Bayesian,” over 1970-2003 in journal articles in a variety of disciplines, with a focus on economics and statistics. The growth in statistics is documented, but the growth in economics is largely confined to economic theory or mathematical economics rather than econometrics.

Mark Steyvers

A first step in identifying the content of a document is determining which topics that document addresses. In collaboration with Tom Griffiths at Stanford University, we have applied the "topics model" to a large database of scientific papers. The topics model is a generative model for documents that reduces the generation of documents to a simple series
of probabilistic steps. We have shown that the extracted topics capture meaningful structure in the data, consistent with the class designations provided by the authors of the articles. An interesting application of the model is to identify “hot topics” by examining topics that become more prevalent over time. In collaboration with Padhraic Smyth and Michal Rosen-Zvi at ICS and Tom Griffiths at Stanford University, we have extended this model to the “author-topic model” where we learn the topics that authors write about. Based on the derived representations, statistical inference can be used to pose the following queries: what topics does a given author write about? Given a document, what author is most likely to have written about the topics expressed in the document? How broad is the research of an author as expressed by the topics distribution? How unusual is a paper for a given author? What author is similar to a given author? These queries are not only relevant when exploring a scientific domain or developing an author profile, but also in practical situations when finding targets for funding or assigning reviewers to a paper or grant proposal.

This research has led to three recent papers.

**Decision Making**

Michael Birnbaum

A classic problem in both economics and psychology is how people make decisions. In recent years, I have been conducting experiments via the WWW in order to test theories known as "prospect" theories, theories that were recognized in the 2002 Nobel Prize in Economics. These theories are intended to describe how people make decisions and are supposed to predict when people depart from normative theories of how a person should choose. They assume that people "edit" choices in order to make them simpler, and that they then make a mental calculation of the weighted sum of utilities of the consequences. I have developed ten "new paradoxes", empirical choices that contradict the predictions of these prospect theories. These empirical phenomena were predicted by my "configural weight" models of decision-making, models that assume that people treat gambles in terms of their "branches" rather than as prospects. A branch of a gamble is a probability-consequence or event-consequence pair. For example, consider an urn containing 50 white marbles, 25 red marbles and 25 blue marbles. Suppose a marble will be drawn randomly and blindly and if the marble is red or blue you win $100, and if it is white, you win $0. This is a two-branch gamble with a .50 branch to win $100 and a .5 branch to win $0. The same gamble can be described as a three branch gamble, as follows: if you draw red, you win $100, if you draw blue, you win $100, and if you draw white, you win $0. According to prospect theories and normative theories, the two descriptions should be evaluated the same. However, research shows that people do not treat them equivalently. My models provide a new way to look at old paradoxes of choice that had been used by prospect theorists to argue against expected utility theory. My 2004 paper in Journal of Mathematical Psychology shows how the classic Allais paradox can be broken down into simpler pieces which can be separately tested. The results of these separate tests refutes the prospect theories, with or without the editing principles. Results of experiments are always viewed with some doubt, so my experiments have been checked and replicated with a number of different experimental techniques and
with thousands of participants. Some of this work is described in my 2003 chapter with Martin, and additional new data are presented in my "in press" paper to appear in Organizational Behavior and Human Decision Processes. Although results vary slightly as a function of procedures and participants, the basic conclusions regarding prospect theories of decision making have been quite stable: these theories do not provide as accurate description of how people make decisions as my branch weighted models.

Scott Brown

My research in the previous year focused on critical tests of otherwise untested assumptions in behavioral models. A large class of decision models make the assumption that the speed of incorrect responses is governed in part by variability in the difficulty of decisions. With Fabio Leite, I have tested this assumption and found that the data do not support it. On another topic, I have been working with another student (Curtis Lehmann) on the properties of multitasking. When two tasks must be performed together, performance on each is worse. There are many theories for how this happens, so we have tried to eliminate some contenders. In particular, many theories assume a two-state mixture model: people are either "ready for a task" or not. These models make very strict predictions about the nature of reaction time distributions, and these predictions are contradicted by data.

Robin Keller

Appointed by the National Academy of Sciences as the expert decision analyst on a committee of scientists for the project “Multiple Objective Decision Analysis for Potassium Iodide Distribution in Nuclear Incidents.” The committee was formed to establish guidelines for the stockpiling of potassium iodide and for its distribution and use in the event of a nuclear incident. The President (via the Office of Science Technology and Policy and the Centers for Disease Control) asked the National Academy of Sciences to conduct a study to recommend the most effective and safest way to distribute and administer potassium iodide.


Vladimir Lefebvre

During this period I have been working in two main directions:

a) Development and elaboration of a model of terrorists’ decision making processes based on the reflexive model of the subject. This work is being done in collaboration with specialists of various profiles from the New Mexico State University.

b) Work on the third edition of “Algebra of Conscience.”
R. Duncan Luce

Marley and Luce (2004) assembled 22 “independence properties” concerning uncertain alternatives (gambles), many of which were suggested and investigated empirically by M.H. Birnbaum, with an eye to evaluating rank-dependent utility (RDU) theories (including Tversky and Kahneman’s cumulative prospect theory). They are based on the following general principle: Suppose gambles g and h have a common branch – event/consequence pair -- and that g is preferred to h. Then, if the common branch is replaced by another common one, to form g’ and h’, the decision maker will also prefer g’ to h’. All of these are satisfied by subjective expected utility theory. Many different versions arise depending on properties of the uncertain events and when the ordering of the consequences matters. The result are scattered in the literature and analyzed in various ways. We systematized them and worked out the necessary and sufficient conditions for each property to hold for each of 4 model types. In the process we showed that Birnbaum’s TAX model is, in fact, equivalent to a rank weighted utility model that we axiomatized. The upshot of this is that after nearly 25 years of effort, the RDU model, including popular cumulative prospect theory, fails pretty badly. Two other models, TAX and what is called gains decomposition utility (closely related to RDU) are still in the running. We have shown 5 critical properties for which there are presently no data. Our work has been submitted for publication.

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.

Charles Chubb

We have isolated and measured the sensitivity of a previously unrecognized visual subsystem that takes, continuously in time, a snapshot of the visual field. This system, which we call the BLACKSHOT system is remarkably sharply tuned to the very blackest components in the scene, and is utterly insensitive to components with (Weber) contrasts any greater than around -0.875.
DeFigueiredo

Completed work on modeling nonlinear dynamical systems in an abstract neural space for applications in computational intelligence. Also developed new models and design procedures for adaptive order statistic filters; and new pre-distortion algorithms for mitigation of nonlinear distortion in OFDM-based wireless communications systems for inclusion in 3rd. and 4th Generation mobile wireless communication systems. Investigated the use of multilayer perceptrons for image compression.

Donald Hoffman

a) Human vision constructs the experiences of color and motion in coordination. In the paper "The interaction of color and Motion" I discuss recent experiments and computational theories which show, in the case of dynamic color spreading, how this coordination can occur. I conclude that color is not simply surface reflectance, or triples consisting of surface reflectances as filtered through cone sensitivity functions. Color is a complex construction of human vision. It is a construction not carried out in isolation, independent of other visual constructions. Instead it is a construction carefully coordinated with the construction of visual motion, surfaces, depths, transparency, and light sources. The nature and complexity of these coordinated constructions has barely been sampled by psychophysics to date. And no existing computational theories are yet adequate to what little of that complexity has been sampled. Displays of dynamic color spreading provide a fertile area for psychophysical study of our coordinated construction of color, surfaces, motion, and lights. They also provide a challenging arena for testing out computational theories of these constructions. The interaction and convergence of psychophysical and computational studies of color should lead to a more profound understanding of the sophistication and complexity of the processes by which we construct color, an understanding which should be a great aid to certain discussions in the philosophy of mind which turn on theories of color vision.

b) Inverting a face impairs perception of its features and recognition of its identity. Whether faces are special in this regard is a current topic of research and debate. Kanizsa studied the role of facial features and environmental context in perceiving the emotion and identity of upright and inverted faces. He found that observers are biased to interpret faces in a retinal coordinate frame, and that this bias is readily overruled by increased realism of facial features, but not easily overruled by environmental context. An additional factor contributing to a retinal coordinate- frame interpretation may be the ambiguous nature of the face stimuli. Since his facial expressions are interpretable both upright and inverted, they may in both orientations activate an endogenous attentional process for faces. In the paper “Facial attention and spacetime fragments” we present visual search and change-blindness experiments that explore how inversion, negation, and facial emotion affect visual attention to static faces. We find that attention to faces is impaired by inversion and negation. We also find that the parts of the face that receive greater attention can be influenced by the emotional expression of the face. We propose to extend these experiments to dynamic faces. To this end, we develop a theory of the visual representation of dynamic faces, in which faces are
represented by classes of 'spacetime fragments-moving regions of the face with high informational content. We then present ideas for future experiments which are motivated by the spacetime fragment theory, and which should serve to constrain its further development.

**Tarow Indow**

As written in the report of 2003, I have devoted myself for these two years to write a book. The manuscript was completed and it is published from World Scientific Publishing Co. by the fall under the title “ The Global Structure of Visual Space”. The contents of the book are summarized in its cover as follows.

Visual space, the space we see around us, is the end product of a long series of processes: physical (formation of retinal image of the physical space), physiological (propagation of excitation from retina to brain), and cognitive (perception of the visual space due to the brain excitation). Visual space is a highly structured perceptual entity, from which we obtain information on the physical space. Physical space which surrounds us is of Euclidean structure, but its perceived image is not necessarily structured in that way. Based upon a few experimental results, Luneburg proposed (1947) an idea that visual space under a limited condition is hyperbolic. In this book, a number of experimental studies are reviewed and it is discussed how to modify his idea to deal with visual space under various experimental conditions and visual space under more natural conditions. Hence, such problems are also discussed; why the sky appears as a vault and why the horizon is localized at the eye level.

**Geoff Iverson**

Nature exhibits “similarity” in a wide variety of contexts. Within the scope of the cognitive sciences we see similarity at work in early visual coding; neural sampling takes place at a variety of spatial scales, but the basic form of the sampling is the same at all scales. Biological cone sensitivities are similar---built from a common “opsin” template; that fact is important for the early coding of color. In psychophysics, similarity reveals itself almost trivially in the form of Weber's Law, but it turns out that the “near miss” to Weber's Law is also an expression of similarity. Forward masking in psychoacoustics provides another example of similarity, as does the growth of loudness of pure tones embedded in noise. The diffusion processes that form the basis of theories of reaction time show a natural tradeoff between the temporal scale and the growth of accumulated information relevant to choice. A natural question arises: how does one define “similarity” so that it ties together these and other examples with a common thread.

**George Sperling**

Using an ambiguous motion task as a sensitive indicator of attention, Tseng, Gobell & Sperling (Nature, 2004) showed that a brief period of attending to a particular color can produce a month-long sensitization to that color. This is a much longer lasting persistence of visual attention than had previously been observed.
Ramesh Srinivasan

We use binocular rivalry to investigate dynamical processes in the brain that underlie conscious experience. In rivalry, incongruent visual images presented one to each eye (e.g., a face and a house) and the observer experiences spontaneous alternations in percept between the two images. We have demonstrated that competition between percepts can be induced even when the stimuli are not presented simultaneously, and occurs even when the images are altered between the eyes with a delay of 100 milliseconds. The time constants we observe are consistent with delays between brain areas involved in processing the stimuli including medial aspects of the frontal lobe, which is demonstrated by physiological data recorded with magnetoencephalography (MEG). The implication is that perceptual time is slow, possibly on the order of 100s of milliseconds and is constrained by cortical time constants including delays between brain areas.

Ted Wright

Response times (RTs) are generally found to increase linearly with the logarithm of the number of potential stimulus-response (S-R) alternatives (e.g., Hick’s Law). Kveraga, Boucher, and Hughes (2002) demonstrated that saccade latencies were unaffected by S-R uncertainty. They suggested that visually guided saccades are unusual because they can be automatically selected using topographically organized pathways in superior colliculus that convert spatially coded visual activity into spatially coded motor commands. We have found that visually-guided, aimed hand movements also are largely unaffected by both S-R uncertainty and stimulus-response repetition.

Hongkai Zhao

During this academic year, one of my research areas has been related to and benefited from IMBS activities. The topic is on partial differential equation (PDE) and variational formulation based computer vision and image processing. My main interest is to design geometric PDEs and energy functions that are based on both physical motivation and human vision system. The theory and efficient numerical algorithms developed for PDEs can be a powerful tool in this study and computation.

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

On endogenous group formation and conflict management: Over the past few years I have
been studying issues related to the endogenous formation of groups and collective action
together in the context of a relatively new economic paradigm, one that allows for the
possibility of conflict and appropriation along side production and trade in the study of
economic interactions. Within this new paradigm, economists have advanced our under-
standing of how conflict influences economic outcomes. Nevertheless, focusing primarily on
the implications of self-interested behavior of individuals (or unitary actors), this research
seems somewhat incomplete in its coverage. Not much attention has been paid to issues that
arise when appropriative activities are carried out by individuals organized into groups.

The central objective of my research under this heading is to learn more about when groups
form and in particular the conditions under which they are (far-sighted) stable. The analysis
builds on a simple economic model that features a “winner-take-all” contest for control of
some resource. Without the formation of groups, each individual participates in the contest
independently. The winner, in turn, applies the resource in the production of a homogeneous
consumption good. By contrast, when a group forms, members pool their efforts to secure
the contestable resource. If successful in this effort, they then apply the resource to a joint
production process. To make the problem interesting, the analysis assumes that neither the
production nor appropriation/defense technologies exhibit increasing returns to scale.
Furthermore, I do not simply presume that group members can agree to divide their
winnings. The formation of groups adds another layer of conflict---that is, one between the
members of the winning group over the distribution of their joint product. Despite that
second layer of conflict, I have found that group formation tends reduce the overall severity
of conflict over the contestable resource. However, the scope for group formation can be
limited in the sense that only small groups tend to be stable. While institutions promoting
conflict management within the group can support the stable formation of larger groups
(even a single group--the so-called grand coalition), structures with larger groups are often
not the most efficient ones. Bigger is not always better!

Globalization and conflict: Stergios Skaperdas (of UCI), Constantinos Syropoulos (of
Florida International University) and I are looking at how globalization affects trade patterns
and welfare in the presence of conflict within a country and between countries. Our analysis
on domestic conflict, which is nearly complete, is conducted within a simple model of trade
where a natural resource like oil is contested by competing groups using real resources
(“guns”). In comparing free trade with autarky, we look not only at the familiar gains from
trade, but also at the induced effects of free trade on the groups' incentive to fight over the contested resource. We find that free trade induces less conflict among groups when, under free trade, the country imports the contested resource. Importing countries, then, gain unambiguously from free trade. By contrast, countries exporting the contested resource will lose under free trade. For such countries, since the international price of the resource exceeds the price that would obtain domestically under autarky, free trade induces more wasteful competition and conflict by making the contestable resource more valuable. The familiar gains from trade are not sufficiently high to compensate for the higher burden of conflict. We also find that conflict affects trade. Regardless of what price obtains in international markets, the country tends to over-export the contested resource relative to the benchmark case where there is no conflict within the country; and, when the international price of the contest resource lies within a certain range, the comparative advantage is reversed relative to that ideal case. Finally, we find that an increase in the international price of the contested resource over an even wider range reduces welfare, an instance of the “natural resource curse.”

We are also looking into how the relative appeal of free trade is influenced by the presence of conflict between nations, and dynamic considerations--namely the shadow of the future.

Igor Kopylov

In recent work, I axiomatize a special case of the multiple priors model where the set of “possible probabilistic scenarios” has an intuitive structure. The structure is that of epsilon contamination, that is, possible probabilistic scenarios are epsilon mixtures of a single “main” probability measure and all those measures that agree with the precise information about probabilities that the decision maker may have, which may be little or none at all. All the components of this representation are unique. In particular, the weight epsilon can be interpreted as an index of pessimism in the presence of the Knightian ambiguity as illustrated by the Ellsberg Paradox.

Mark Machina

During the year I completed a 12-year research project, summarized in the final version of a paper titled “Expected Utility/Subjective Probability Analysis without the Sure-Thing Principle or Probabilistic Sophistication.” This work shows how the analytics of the classical theory of attitudes toward risk (namely expected utility theory) and the analytics of the classical theory of uncertain beliefs (namely subjective probability theory) can both be extended to individuals whose behavior does not necessarily conform to either of the key foundational assumptions of these theories. This is accomplished by observing that individuals who do satisfy the classical assumptions have betting preferences that exhibit “constant sensitivity in the events” (that is, constant sensitivity to changes in the events attached to each possible outcome in a gamble), and that the analytics of such constant sensitivity models can be extended to more general betting preferences that are merely “smooth in the events” in the same manner in which standard calculus allows us to extend the analytics of linear (i.e. “constant sensitivity”) functions to nonlinear smooth functions. Among other things, this work extends the classical expected utility characterizations of
comparative risk aversion and the classical subjective probability characterization of comparative and relative event likelihood.

Michael McBride

My work continues along three fronts: collective action under threshold uncertainty, network formation under imperfect monitoring, and the political economy of economic development. One finding from this last year relates to the relationship between clientelism and coups d'etat in less-developed countries. Political clientelism is a form of exchange in which politician-patrons distribute state resources to citizen-clients in return for political support. In a formal model of political competition, I show that when clientelism is too successful in generating large material benefits for politicians and in securing their power from electoral challenges, then rival groups will attempt coups to gain access to those material benefits. I show the conditions under which politicians will not be able to coopt challengers. Thus, although clientelism has its roots in the consolidation of power, it can actually create politically instability. One implication of my research is that democratic consolidation is tenuous in less-developed countries where politicians' clientelist practices generate large benefits for themselves.

Donald Saari

An evolving theme that is proving of importance to a large number of social, behavioral, and even biological sciences, is evolutionary game theory. Because it is such a powerful tool, it is unfortunate that this approach is technically beyond the abilities of many to use, and, as currently used, it is far too specific for use in many of the intended areas. This year, both independently and with some graduate students, a qualitative approach toward this area, which removes many of the earlier obstacles, has been advanced.

Ken Small

Road pricing policies can be made more efficient and can have more evenly distributed burdens if they take into account the great differences in how much people are willing to pay for time savings and improved reliability of travel. These differences have recently been measured more accurately, using better data and computationally intensive statistical estimation routines. Thus various kinds of differential or optional pricing, pioneered in recent experiments, offer policymakers a long-awaited opportunity to address the stalemates that impede transportation policy in congested cities.

(b) Public Choice

Bernard Grofman

The U.S. Supreme Court, in a case called Georgia v. Ashcroft decided in 2003, reopened the legal question of defining minority influence in the context of avoiding retrogression of minority electoral strength under Section 5 of the Voting Rights Act of 1965. In a series of papers (some co-authored with Lisa Handley), I have tried to provide a precise statistical
standard for evaluating levels of minority influence, developing a 3-pronged test that looks at overall minority electoral success, overall partisan control of the legislature, and the existence of minority political influence in individual districts.

Marek Kaminski

In my book "Games Prisoners Play," I argue that simple models of game theory and decision theory are appropriate tools for analyzing what that have been considered so far a field outside of the domain of rational choice mode of analysis: the behavior of inmates in prisons and jails. Prison first appears an irrational world of unpredictable violence and arbitrary codes of conduct. But as I show in ethnographic detail, prisoners, to survive and prosper, have to master strategic decision-making. A clever move can shorten a sentence; a bad decision can lead to rape, beating, or social isolation. Much of the confusion in interpreting prison behavior, I argue, arises from a failure to understand that inmates are driven not by pathological emotion but by predictable and rational calculations.

Anthony McGann

My research has focused on democratic theory, particularly on electoral systems. I have written an working paper with Eliora van der Hout from Tilburg University (who I first met at an IMBS sponsored conference here) that shows that the most basic principles of political equality imply that legislative elections must be by proportional representation. I am currently working on a paper to extend this result from single-vote to multiple-vote elections. I have also written two papers on the effects of proportional representation. One (with Michael Latner) shows that national list proportional representation in the Netherlands and Israel is actually surprisingly representative of geographical differences, contrary to conventional wisdom. The other uses power score analysis to show that the perception that proportional representation in Israel leads to small parties having disproportionate influence is a myth, again contrary to conventional wisdom. In addition to work on electoral systems, I have published papers on the logic of supermajoritarian decision-making (such as systems with checks and balances) and on far-right parties in the Alpine republics (with Herbert Kitschelt). I have also co-authored a conference paper (under review at Journal of Conflict Resolution) that models the effects of economic sanctions.

I have worked with Professors Grofman and Uhlaner toward designing a quantitative methods sequence for political science graduate students. I have taught some students maximum likelihood and R language programming as independent studies. However, over the next two years we intend to implement a three-course sequence.
(c) Social Networks

Mike Burton

Kim Romney, Carmella Moore, and I presented findings at this year's meetings of the Society for Cross-Cultural Research on the relationships between language families and social structure. We find that language families have characteristic social structure signatures, falling mainly into five types - unilineal, patrilineal, patricentric, matricentric, and bilateral. We also show that several hypothesized super phyla, such as Greenberg's Eurasian phylum, show statistically significant relationships with social structure patterns.

Carter Butts

In recent work with Christine Hilgeman, I have investigated the underlying relationships among Americans' religious behaviors and beliefs. Rather than a simple continuum from low to high levels of religiosity, we find that American religious beliefs are better described by a system of interlocking dependencies. Among those who might be characterized as highly religious, there appear to be distinct “tracks” leading to evangelism and self-reported “born again” experiences, on the one hand, and embeddedness in collective religious activities, on the other. Interestingly, reporting of “born again” experiences depends not only on endorsement of other Protestant beliefs, but also on a latent element which seems to correspond to the acceptance of personal revelatory experiences. This latent element is itself strongly associated with nontraditional religious beliefs; thus, we find evidence of a hidden cognitive connection between certain groups of highly committed Protestants and others whose manifest beliefs are quite different. By identifying these sorts of “building blocks” underlying religious belief, we hope to learn more about the manner in which religions propagate and change over time.

Douglas White

In Networks and Organizational Studies, White et al. (in press) found new linkages between how people behave in organizational or interpersonal networks and the overall topology of cohesive integration in large-scale networks created by this behavior. In Powell et al. (in press) we made new discoveries as to how cohesive network integration forms part the social processes responsible for the production of innovation and new solutions to problems of developing new products within the inter-corporate networks of the global biotechnical industry.

Shifting to the Anthropology of Australian Aborigines, methods of network cohesion analysis revealed equivalence structures in which interviews on all possible mental calculations of "who is the X of my relative Y" for an entire population showed a new resolution of the problem of how variant Australian kinship systems evolved: namely, an 'open field' kinship algebra that is almost perfectly consistent with observed marriage and genealogical connections but which allows alternative interpretations (and subsequent evolutions) to be made with perfect inner consistence. These allow anthropologists as well as
members of the population to form (and select among) alternative logics that are embedded in one another, and allowing flexible paths of evolution that change emphasis according to demographic changes resulting from changes in preferences and frequencies of different types of marriage. Previously, such kinship logics (algebras) were thought to be closed and prescriptive, giving rise to disputes among anthropologists as to the best 'single models' of social structure. Our finding (White and Denham in press) is that multiple models previously thought to be consistent are in simultaneous and internally consistent operation.

III. GRADUATE TRAINING

A. Ph.D. and MA Students

Working with the faculty of the Institute are 48 Ph.D. students, of whom 15 advanced to candidacy during the year. 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:

Rolf Johnson
Gabriel Lawson
Fabio Leite
Joel Schwarzbart
Amjad Toukan

In addition, 4 students will join the program in the Fall.

During the year, the Institute initiated a 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 20 proposals requesting summer funds, and of those, the following 12 students were awarded funds in varying amounts: Garrett Asay, Eric Ayzenshtat, Ashish Chaturvedi, Joshua Chan, Tianjeng Feng, Sam Hillier, Hao Jia, Gabriel Lawson, Fabio Leite, Lingfang Li, Alex Strashny, Kevin Zollman.

A condition of the support is that the student gives a talk during the academic year on his/her research. Here are the talks given by students who received support in the summer of 2003:

Ma Ge – “Studies on visual perception of 4D structure”
Fabio Leite – “An investigation on input variability in two-alternative forced choice tasks”
Jason Kronewetter and Sandeshika Sharma – “Inter-group conflict and local conventions”
Alex Strashny – “Dynamic paired comparison”
Amjad Toukan – “Risk of expropriation and the Heckscher-Ohlin theorem?”
Kevin Zollman – “Cooperation and the evolution of regional meaning”

B. Graduate Advisory Council

During this past year a Graduate Advisory Council was formed. The Council is composed of 5 graduate students with Garret Asay and Amjad Toukan as the Co-Chairs.
The purpose of the Council is to foster interaction between graduate students in research areas similar to MBS.

**Council Members:**
- Garret Asay (Co-Chair) - Economics
- Yvonne Brown - Social Relations
- 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:

- A Historical and Experimental Review of Behavioral Decision Making [Birnbaum]
- Professional and Laboratory Skills [Braunstein]
- Cognitive Modeling [Brown]
- Network Theory [Butts]
- Issues in Crisis Response [Butts]
- Mind-Body Problem [Hoffman]
- Face Perception [Hoffman]
- Decision Theory Doctoral Seminar [Keller]
- Choice Under Uncertainty – Classical and Current Approaches [Machina]
- Naturalism [Maddy]
- Macropolitics [McGann]
- Rationality and Democracy [McGann]
- Conceptual Foundations of Probability [Narens/Skyrms]
- Evolutionary and Quasi-Evolutionary Dynamical Models [Narens/Saari/Skyrms]
- Econometrics Colloquium [Poirier]
- Special Topics in Economic Theory [Skaperdas]
- Topics on Political Economy of Development [Skaperdas]
- Transportation Economics I [Small]
- Colloquium in Transportation Science [Small]
- Special Topics in Human Performance [Sperling]

The Institute held a weekly seminar on “Decisions: Theory and Applied”, organized by Donald Saari. Each session looked at an actual class of decision problems and the approaches currently being used were discussed. Then, an attempt was made to identify the strengths and weaknesses of the approaches while finding improvements. The long-term goal was to develop an understanding that will help address emerging decision issues.

**D. Graduate Emphasis**

A new Emphasis was created in 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.

We expect to be able to begin recruitment for the Emphasis for the 2004-2005 academic year, and by the second year (2005-2006), we expect to recruit about 4 new students each year. 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.

IV. COMMUNICATION

A. Conferences

The Institute helped sponsor a three-day conference on “Ordinal and Symbolic Data Analysis” held at UCI, August 20-23, 2003. The members of the organization committee were: William H. Batchelder, Edwin Diday, Jean-Paul Doignon, Jean-Claude Falmagne, Melvin F. Janowitz, R. Duncan Luce, Fred S. Roberts, and Donald Saari. The theme of the conference was motivated by the fact that ordinal and symbolic data occur quite frequently, but theoretical tools for handling ordinal and symbolic data are not sufficiently developed. The conference viewed both ordinal and symbolic data in a very broad sense. The agenda can be found in Appendix G.

The Institute was a joint sponsor with the Department of Economics of the Annual Southwest Economic Theory Conference held, February 27 and 28. The agenda can be found in Appendix G.

The Institute held a conference on “Evolutionary Game Theory” at the Beckman Center, March 19 and 20. The speakers represented different disciplines and perspectives. The agenda can be found in Appendix G. In conjunction with this conference, a mini-conference was held on April 2 with speakers Martin Nowak, Director of the Program for Evolutionary Dynamics at Harvard University, and Sanjeev Goyal, Department of Economics and the University of Essex. Professor Nowak’s topic was “Evolutionary Game Theory”, and Professor Goyal’s topic was “Economics: An emerging small world?”.

The Institute organized the Second Annual Graduate Student conference on April 28. Graduate students were invited to apply to give a talk on their research. The agenda can be found in Appendix G.

On May 7 and 8, the Institute held a conference on “Individual Decisions”. This two-day conference presented interdisciplinary topics on how people make decisions. A copy of the agenda can be found in Appendix G.
B. Conferences/Seminars organized by IMBS Members

Michael Birnbaum

Organized the 42nd Annual Bayesian Research Conference, held in Fullerton, CA in January, 2004. In addition, I hosted the fourth Advanced Training Institute in Fullerton, held after the Bayesian Research Conference on Web-Based Research.

Carter Butts

Introduction to Social Network Analysis Workshop (w/Katherine Faust), May 04

Symposium on Current Research in Network Comparison, July 04


DeFigueiredo

General Co-Chair, 2nd IEEE International Conference on Circuits and Systems for Communications, Moscow, Russia, June 30-July 2, 2004.

Katherine Faust

ICPSR week-long workshop on Social Network Analysis, Chapel Hill, NC, July 2004

Invited Workshop on Social Network Analysis, The Odom Institute, UNC Chapel Hill, November 2004.

ICPSR week-long workshop on Social Network Analysis, Chapel Hill, NC, June-July 2004.

Workshop on Social Network Analysis, with Carter Butts, UCI, May 2004

Penelope Maddy


Michael McBride


UCI Economics Jr. Faculty Lunch Seminar.

Amihai Glazer

Public Policy Lunch, Fall 2003 and Spring 2004.
Donna Saari

_Celestial Mechanics_, BIRS, Banff Canada, March, 2004

George Sperling


Mark Steyvers


Hongkai Zhao

Annual Southern California Applied Mathematics Symposium (SoCAMS), 4/24, LA.


Organizer for ONR workshop on time reversal, Irvine, CA, 8/2003.

C. Future Conferences

The Institute is planning several conferences next year. Planned topics are: 4-Dimensional; Decisions and Sports; Cognitive Psychometrics: cognitive models as measurement tools; Third Annual Graduate Student Conference; Conference on Decisions and Justice, and possibly, a conference on Assessment.

D. Visitors

The Institute hosted 4 visitors during the 2003-04 year. Their letters can be found in Appendix H.

Andrew Heathcote
Department of Behavioral Sciences
University of Newcastle
NSW, 2308, Australia

Kimberly Jameson
Center for Research in Language
University of California, San Diego
9500 Gilman Drive, 0526
La Jolla, CA 92039-0526
Next year the Institute will sponsor the visits of Brian Lawson, Assistant Professor in the Department of Political Science at the University of Cincinnati, Michael Jones, Associate Professor of Mathematical Sciences at Montclair State University, and Andrea Knecht, a graduate student in Sociology from the University of Utrecht in the Netherlands.

E. Colloquium Series

During the academic year the Institute had a colloquium series with speakers both from the Institute and from the outside. A committee consisting of Donald Hoffman and Brian Skyrms 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 next day. We distributed a relevant paper, when available, prior to each colloquium.

In January 2004, a new focus group in “Social Dynamics and Evolution”, was created within the IMBS. The group is actively recruiting graduate students and has one first year student and one admitted for fall 2004. The group established a web site at http://eclectic.ss.uci.edu/ResFocusGrp with a listing of its new weekly research and colloquium meetings, which began on January 26 and ran through June, 2004. In June, 2004, the group founded an MBS-based refereed eJournal, Structure and Dynamics with a distinguished international editorial board, three senior editors from the focused research group, and with all members of the graph listed as associated editors. Two volumes on research issues undertaken by the group for 2004 are in preparation. A new web site is under development 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.

Along with the Center for the Study of Democracy, the Institute sponsored the Public Policy series of topics, organized by Professor of Economics, Amihai Glazer. The format was not of a lecture, but of a lively interchange of ideas led by a different faculty member each time.

Listed below are the IMBS colloquia as well as those in Social Dynamics and Evolution, and the topics in Public Policy.
October 9
• **GEORGE SPERLING**, Department of Cognitive Sciences, UC Irvine,
  “How the brain computes visual motion”.

October 16
• **LINTON FREEMAN**, Department Of Sociology, UC Irvine,
  “The role of mathematics in the development of social network analysis”.

October 23
• **PAUL ZAK**, Claremont Graduate University, Department of Economics and
  Loma Linda University, Neurology Department. “The neurobiology of trust”.

October 30
• **BRIAN SKYRMS**, Department of Logic and Philosophy of Science, UC Irvine,
  “Learning to network: dynamic models of social network formation”.

November 6
• **LOUIS NARENS**, Department of Cognitive Sciences, UC Irvine,
  “A new foundation for support theory”.

November 13
• **ANDREW HEATHCOTE**, University of Newcastle, Department of Behavioral
  Sciences, “Estimation of RT distributions with a parameter dependent lower
  bound”.

November 20
• **PHILIP BONACICH**, Department of Anthropology, UCLA, ““Power in
  Reciprocal Exchange Networks: Models, Simulations, and Experiments””.

December 4
• **HERB GINTIS**, Department of Economics, University of Massachusetts Irvine,
  “How the brain computes visual motion”.

**IMBS WINTER 2004**

January 15
• **JEROME BUSEMEYER**, University of Indiana, Department of Psychological
  Sciences, “Comparison of learning and choice models for decisions based on
  experience”

January 29
• **R. DUNCAN LUCE**, University of California, Irvine and University of Victoria
  “To Honor L.J. Savage, But Do Avoid His Formulation of the Decision Situation”

February 5
• **CHARLES PLOTT**, California Institute of Technology, Department of
  Humanities and Social Science, “Principles of Market Disequilibrium Dynamics
  in Experimental General Equilibrium Environments”
February 12
• JOHN ANDERSON, UC Riverside, Department of Psychology, “Use of Control Theory in the Study of Closed loop performance: Driving Skill”

February 19
• SANDY ZABELL, Northwestern U., Department of Statistics & Mathematics, “DNA Identification and Bayesian Statistics”

March 4
• HONG-KAI ZHAO, UC Irvine, Department of Mathematics, “Applications of Partial Differential Equations in Image Processing and Computer Vision”

March 11
• MATTHEW JACKSON, Caltech, Humanities and Social Sciences, “Social Networks in Labor Markets”

March 18
• STEVE FRANK, UC Irvine, Department of Ecology & Evolutionary Biology, “Foundations of Social Evolution”

April 15
• RUSS HARDIN, New York University, Department of Politics, “Social Capital”

April 22
• MICHAEL LEYTON, Rutgers University, Department of Cognitive Sciences, “A Generative Theory of Shape”

April 29
• GERARD ROLAND, UC Berkeley, Department of Economics, “How do electoral rules shape party structures, government coalitions, and economic policies?”

May 6
• ROBERT BOYD, UCLA, Department of Anthropology, “The evolution of altruistic punishment”

May 13
• GEOFFREY IVERSON, UC Irvine, Department of Cognitive Sciences
  (1) “The analytic form of the daylight locus (with Charlie Chubb)”
  (2) “Cone-based coordinates for Munsell chips (with Kim Romney & Ti-Lien Hsia)”

May 20
• VINCENT MERLIN, Department of Economics, University Caen, France “Probability Models for the Analysis of Voting Rules in a Federal Union”

May 27
• STERGIOS SKAPERDAS, Department of Economics, University of California, Irvine, “What kind of order out of anarchy? Self-governance, autocracy, and predatory competition”

IMBS SPRING 2004
June 10
• DON HOFFMAN, UCI, Department of Cognitive Sciences, “Part of Visual Objects”

SOCIAL DYNAMICS AND EVOLUTION
WINTER 2004

January 26
• DOUG WHITE, Anthropological Sciences, Social Networks, “Network Processes in Evolving Systems”

February 4
• DURAN BELL, Anthropological Sciences, “Wealth as the foundation to the dynamical processes of social formations”

• B. NICK COLBY, Anthropological Sciences, “An alternate view of culture, evolution, and biocultural success that accommodates interdisciplinary findings and yields falsifiable theoretical statements”

February 11
• CHRISTOPHER CHASE-DUNN, Director, Institute for Research on World Systems, UC Riverside, “Dynamics of urban, regional and ecosystem networks Since the Iron age”

February 18
• DONALD SAARI, Director, Institute for Mathematical Behavioral Sciences “Dynamics in the Study of Evolution”

February 25
• SANDER VAN DER LEEUW, Department of Archeology, Nanterre, and Anthropology Chair, Arizona State University, “The study of long-term socio-natural dynamics at the regional scale in Southern France”

March 3
• MATTHEW MAHUTGA, Dept. of Sociology, UCI, “Assessing Change through Globalization and the 'New International Division of Labor': A Network Analysis of International Trade, 1965-2000”

March 10
• TONY SOELLER, NACS Research Computing Specialist in GIS (Geographic Information Systems), “Introduction to GIS and subsidized access to high-end computing and computational resources at San Diego Supercomputer Center”

March 17
• REIN TAAGEPERA, Professor Emeritus, Dept. of Political Science, UCI “Expansion and Contraction Patterns of Large Polities”

• ANDREY KOROTAYEV, Princeton Institute for Advanced Studies “Historical Dynamics Pretests: Do Turchin's results on States and Empires replicate for City size?”
April 6
- HAL STERN, Department of Statistics, UCI, “Methods for combining information in dynamic systems”

April 13
- CAROL HUGHES, Head Librarian, UCI, “eScholarship and the eJrnl concept”

April 20
- DWIGHT READ, Professor of Anthropology, UCLA, “Rethinking Kinship: Implications for the Modeling of Culture”

May 4
- DONALD SAARI, Director, Institute for Mathematical Behavioral Sciences, “Part II, Generalized dynamical modeling”

May 11
- ANDREY KOROTAYEV AND NATALIA KOMAROVA (Russian State University for the Humanities and Rutgers), “A new mathematical model of pre-industrial demographic cycles”

May 18
- PETER TURCHIN, Department of Ecology and Evolutionary Biology, University of Connecticut, “Using the methods of nonlinear analysis to investigate historical dynamics”

June 1
- ROBERT GARFIAS, Department of Sociology, UCI, “Playing the numbers by Ear: An Ethnomusicologist looks at Diffusion and Migration Data”

TOPICS IN PUBLIC POLICY
FALL 2003

October 3
“Why government adopts inefficient trade policies, such as quotas rather than tariffs”

October 17
“Fuel Efficiency of Cars”

October 31
“The Aversion to Pricing”

November 17
“Why policy reforms are delayed.”
April 30

May 14
“Why the welfare state looks like a free lunch.”

May 28
“Why doesn’t the U.S. have a European-Style welfare state?”

June 11
“Income Inequality: Issues and Policy Options”
V. BUDGET

A. Appropriations and Expenditures

Appropriations:

- 2003-04 Allocation $ 90,649.00
- 2002-03 Carry Forward $ 35,668.86
- Conference Support $ 6,197.72

Total budget for 03-04 $132,515.58

Expenditures:

- Salaries $37,884.34
- School Administrative Support $ 7,500.00
- Conference/Colloquia $24,738.34
- Equipment $ 3,929.66
- Supplies & Expenses $ 3,609.66
- Graduate Student Support $12,000.00

Total Expenditures: $ 89,662.00

Carry Forward to 2004-05 $ 42,853.58

2004-05 Encumbrances:

- Graduate Student Support $15,100
- Conference Support $ 5,000
B. Extramural Funding Activity

IMBS faculty research was supported by 24 research grants. At present, 2 individual grants are pending. Following is a detailed breakdown of the extramural funding.

**GRANTS AWARDED AND ACTIVE:**

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<th>PI</th>
<th>Source</th>
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<td>“Collaborative Research: Responding to the Unexpected.” Mehrotra, Sharad (PI); Butts, Carter T. (Co-PI); Eguchi, Ronald (Co-PI); Venkatasubramanian, Nalini (Co-PI); and Winslett, Marianne (Co-PI).</td>
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<td></td>
<td>Color Pattern Appearance and Detection</td>
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<tr>
<td>Name</td>
<td>Funding Body</td>
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<td>Dosher</td>
<td>NIH</td>
<td>$1,103,244</td>
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<td>Functions and Mechanisms of Perceptual Learning</td>
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<td>Dosher</td>
<td>Air Force</td>
<td>$331,837</td>
<td>1/01-12/04</td>
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<td>Color Pattern Appearance and Detection</td>
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<td>Faust</td>
<td>CORCLR</td>
<td>$25,000</td>
<td>5/02-6/05</td>
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<td>Social Networks in Hollenbeck: Gangs and Communities</td>
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<td>Grofman</td>
<td>Borchard Foun.</td>
<td>$25,000</td>
<td>2004</td>
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<td>A conference on Pluralitarian/Majoritarian Electoral Systems (Borchard Foundation, with $2,500 supplemental funding from the UCI Center for the Study of Democracy; with James Adams and Shaun Bowler)</td>
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<td>Hoffman</td>
<td>Alzheimer’s Assoc.</td>
<td>$387,000</td>
<td>8/02-7/04</td>
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<td>The role of parts in the visual perception of objects.</td>
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<td>Kaminski</td>
<td>CSD, NSF</td>
<td>$13,300</td>
<td>3/04-4/05</td>
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<td>Transitional Justice in Comparative Perspective, Co-PI with Monika Nalepa</td>
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<td>Kaminski</td>
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<td>1/04-12/04</td>
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<td>Conference on Transitional Justice in October 2004, Co-PI with Monika Nalepa</td>
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<td>Keller</td>
<td>U.S. EPA</td>
<td>$895,234</td>
<td>8/00-7/03</td>
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<td>Identification and Control of Non-Point Sources of Microbial Pollution in a Coastal Watershed.</td>
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<td>Keller</td>
<td>NSF</td>
<td>$6,900,000</td>
<td>9/04-8/09</td>
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<td>Decision Center for a Desert City. Serve on decision research team with Craig Kirkwood, Don Keefer, and Bill Verdini of ASU.</td>
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<td>Luce</td>
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<td>Romney/Batchelder</td>
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<td>Saari</td>
<td>NSF</td>
<td>$99,999</td>
<td>7/03-6/04</td>
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<td>Examining Model Validation for Engineering Design</td>
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<td>Skaperdas</td>
<td>MacArthur Foun.</td>
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<td>7/02-6/03</td>
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<td>Investing in Conflict Management: An Economic Approach</td>
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<td>Small</td>
<td>Calif. Air Resources</td>
<td>$75,590</td>
<td>6/03-9/05</td>
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<td>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).</td>
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Smyth

NSF-DARPA-NSA $435,000. 10/02 – 9/04
Entity-Based Data Mining from Spatiotemporal and Text-Based Data Streams.
(Consultant: M. Steyvers)

Sperling

AFO: Scientific. Res. $438,624 4/04-12/06
Deriving a Computational Theory of Visual Spatial Attention.

Steyvers/Brown

CORCLR $11,950 7/03-6/04
The Dynamics of Decision Making and Criterion Setting: Data and Theory

White

EU Grant sub-contract component $10,000 1/02-12/05
Society as a Complex System (PIs on the main grant are Profs. Sander van der Leeuw, David Lane and Geoffrey West)

Zhao

ONR $650,000 11/01-10/04
ONR: Time Reversal and Imaging in Heterogeneous and Noisy Environments

Zhao

DARPA $500,000 2/04-11/05
Time Reversal and Imaging in a Multiscale Environment and Applications to Imaging and Communications.

INDIVIDUAL PROPOSALS PENDING

Butts

NSF, SBE, HSD $502,197 2/04-11/05
“Information Diffusion Through Interpersonal Networks in Crisis Settings”

Faust

CORCLR $25,000 5/02-6/05
“Social Networks in Hollenbeck: Gangs and Communities”
VI. APPENDICES

APPENDIX A
CURRENT FACULTY MEMBERS

This year the Institute added two new members. Professors Natalia Komarova and Hongkai Zhao. They are included below.

**MEMBERS**

Aldo Antonelli, (Ph.D Philosophy, University of Pittsburgh). Associate 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.


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.

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


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 Dosher, (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.


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.

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.

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.


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.

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.


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.


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.


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.

Justin Tobias, (Ph.D. Economics, University of Chicago). Assistant Professor of Economics, University of California, Irvine. Research areas: nonparametric methods in econometrics, Bayesian econometrics and the economics of education.
**Douglas White**, (Ph.D. Anthropology/Social Theory, University of Minnesota). Professor of Anthropology, University of California, Irvine. Research areas: Social theory, organization, networks, long-term field studies and social dynamics, world-system impacts on local communities, ethnosophiology, comparative studies, quantitative methods; Mexico, Europe.


**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.


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.

Jeffrey Barrett

Barrett, J. A. The Quantum Mechanics of Everything. Forthcoming in the *British Journal of Philosophy of Science*.

Barrett, J. A. Relativistic Quantum Mechanics Through Frame Dependent Constructions. Forthcoming in *Philosophy of Science*.


Michael Birnbaum


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1 Those members not listed failed to respond to our request for information.

**Myron Braunstein**


**Scott Brown**


**Mike Burton**

M. L. Burton, et al. Sampling from the United States Census Archives. Accepted for publication by *Field Methods.*
M. L. Burton, E. Greenberger, and C. Hayward. Mapping the Ethnic Landscape. Accepted for publication by Cross-Cultural Research.

Carter Butts


Charles Chubb


DeFigueiredo


Katherine Faust


Michele Garfinkel


**Amihai Glazer**


**Bernard Grofman**


**Donald Hoffman**


**Tarow Indow**


**Geoff Iverson**


Marek Kaminski


Robin Keller

Co-author of “Distribution and Administration of Potassium Iodide in the Event of a Nuclear Incident,” Committee to Assess the Distribution and Administration of Potassium Iodide in the Event of a Nuclear Incident, Board of Radiation Effects Research, Division of Earth and Life Studies, National Research Council of the National Academies, National Academies Press, Washington, DC.


**Igor Kopylov**

Kopylov, I. Subjective Probabilities on “Small Domains” (submitted to Econometrica).


Note on Gul-Pesendorfer’s Representation of Temptation. Working paper

**Vladimir Lefebvre**


“Bipolarity, Choice, and Entro-Field”, (accepted).

“Structure-Determined and Emergent Procedures of Decision Making” with D. Birx and S. Schmidt (accepted).

“On Sharing a Pie Modeling Costly Pro-Social Behavior”, (accepted).

**R. Duncan Luce**


Luce, R.D. & Marley, A. A. J. (2004)) Additive utility representations of gambles: Old and

judgments I: Behavioral properties of summations and productions. Submitted.

judgments II: Behavioral properties linking summations and productions. Submitted

Marley, A. A. J. & Luce (2004). Independence properties vis-à-vis several utility
representations. Submitted.

**Mark Machina**

“Choice Under Uncertainty,” in *Encyclopedia of Cognitive Science*, Lynn Nadel (Editor-in-

“States of the World and the State of Decision Theory,” in Donald J. Meyer (ed.), *The


“Structural Attribution of Observed Volatility Clustering” (with Clive Granger), forthcoming
in *Journal of Econometrics*.

“ ‘Expected Utility/Subjective Probability’ Analysis without the Sure-Thing Principle or
Probabilistic Sophistication,” forthcoming in *Economic Theory*.


**Penelope Maddy**

Maddy, P. Second Philosophy, to appear in the *Journal of the Indian Council of
Philosophical Research*.

**McBride**

Explication of the Cultural Transmission Model, with Elisa Bienenstock, *American
Sociological Review* 69: 138-143
Anthony McGann


Dale Poirier

Bayesian Semiparametric Inference in Multiple Equation Models, (with Gary Koop and Justin Tobias), Journal of Applied Econometrics, forthcoming.


The Roles of Birth Inputs and Outputs in Predicting Health, Behavior, and Test Scores in Early Childhood” (with Kai Li), Statistics and Medicine, Vol. 22, Issue 22 (November 2003), 3489-3514.


Estimation and Prediction in Non-Gaussian Selection Models with Application to Estimating the Impact of Dropping Out of High School on Test Scores (with Mingliang Li and Justin Tobias).

**Donald Saari**


(with S. Barney) Consequences of reversing preferences, Math Intelligencer 25 (2003), 17-31


**Stergios Skaperdas**


Castillo, Ramon A. and Skaperdas, Stergios. All in the Family or Public? Law and Appropriative Costs as Determinants of Ownership Structure, forthcoming in Economics of Governance.

**Brian Skyrms**


Learning to Take Turns, (with Peter Vanderschraaf), Erkenntnis 59 (November 2003) 311-348.


Discovering ‘Weight or The Value of Knowledge’ in Proceedings of the Ramsey Centenary, Conference Institute of the Vienna Circle.

**Kenneth Small**


**George Sperling**


Hal Stern


Mark Steyvers


Douglas White


53


**Ted Wright**


**Hongkai Zhao**


H. Zhao. Analysis and Visualization of Large Set of Unorganized Data Points Using the Distance Function, submitted.


### APPENDIX C
**IMBS TECHNICAL REPORTS, 2003-04**

<table>
<thead>
<tr>
<th>MBS 03-04</th>
<th>Structural Change and Homeostasis in Organizations: A Decision-Theoretic Approach</th>
<th>Carter T. Butts, Kathleen M. Carley</th>
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<tr>
<td>MBS 03-06</td>
<td>Additive Utility Representations of Gambles: Old, New, and Needed Results</td>
<td>R. Duncan Luce, A. A. J. Marley</td>
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<td>MBS 03-07</td>
<td>Introductory Chapter to the 3rd Edition of Algebra of Conscience</td>
<td>Vladimir A. Lefebvre</td>
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<td>MBS 03-08</td>
<td>The Assessment of Knowledge in Theory and in Practice</td>
<td>Jean-Paul Falmagne, Eric Cosyn, Jean-Paul Doignon, Nicolas Thiéry</td>
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<td>MBS 03-09</td>
<td>Valuing Sequences of Lives Lost Or Saved Over Time: Evidence of Gain/Loss Asymmetry</td>
<td>Jeffrey L. Guyse, L. Robin Keller</td>
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<td>MBS 03-10</td>
<td>From Prediction to Reflexive Control</td>
<td>X. H. Kramer, T. B. Kaiser, S. E. Schmidt, J. E. Davidson, V. A. Lefebvre</td>
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<td>MBS 03-11</td>
<td>Mentalism and Behaviorism: Merging?</td>
<td>Vladimir A. Lefebvre</td>
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<td>MBS 03-12</td>
<td>Geometry of Chaotic and Stable Discussions</td>
<td>Donald G. Saari</td>
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<td>MBS 03-13</td>
<td>Consequences of Reversing Preferences</td>
<td>Donald G. Saari, Steven Brney</td>
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<td>MBS 03-14</td>
<td>Are Part Wise Comparisons Reliable?</td>
<td>Donald G. Saari, Katri K. Sieberg</td>
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<td>MBS 04-01</td>
<td>Additive Utility Representations of Gambles: Old and New Axiomatizations</td>
<td>R. Duncan Luce, A.A.J. Marley</td>
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<td>MBS 04-02</td>
<td>Evaluating a Model of Global Psycho-physical Judgments: I. Behavioral Properties of Summations and Productions</td>
<td>Ragnar Steingrimsson, Duncan Luce</td>
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<td>MBS 04-03</td>
<td>Evaluating a Model of Global Psycho-physical Judgments: II. Behavioral Properties of Linking Summations and Productions</td>
<td>Ragnar Steingrimsson, Duncan Luce</td>
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<td>MBS 04-04</td>
<td>A New Foundation for Support Theory</td>
<td>Louis Narens</td>
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<td>MBS 04-05</td>
<td>Negative Externalities and Sen's Liberalism Theorem</td>
<td>Donald G. Saari</td>
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<td>MBS 04-06</td>
<td>Bipolarity, Choice, and Entropy</td>
<td>Vladimir A. Lefebvre</td>
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<td>MBS 04-07</td>
<td>Equal Protection Implies Proportional Representation</td>
<td>Eliora Van der Hout, Anthony McGann</td>
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<td>MBS 04-08</td>
<td>Bayesian Inference from Continuously Arriving Informant Reports, with Application to Crisis Response</td>
<td>Carter T. Butts, Fabio Leite</td>
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<td>MBS 04-09</td>
<td>Exact Bounds for Degree Centralization</td>
<td>Carter T. Butts</td>
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<td>MBS 04-10</td>
<td>The Profile Structure for Luce’s Choice Axiom</td>
<td>Donald Saari</td>
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<tr>
<td>MBS 04-11</td>
<td>Independence Properties Vis-á-vis Several Utility Representations</td>
<td>A. A. A. Marley, R. Duncan Luce</td>
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</tbody>
</table>
Michael Birnbaum


Birnbaum, M. H. I’m not really overweight; it just needs redistribution. 42nd Bayesian Research Conference, Fullerton, CA, January, 2004.


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2 Those members not listed failed to respond to our request for information.


Scott Brown


David Brownstone


Mike Burton


Carter Butts


Charles Chubb


DeFiguererideo


Rui J. P. de Figueiredo, Lead Panelist on the Forum on Future Directions in Circuits and Systems, at the 2004 International Symposium on Circuits and Systems (ISCAS 2004), May 23 –May 26, Vancouver, Canada

Opening Welcome Address at the 2nd. IEEE International Conference on Circuits and Systems for Communications (ICCSC-2004), Moscow, Russia, June 30 - July 2, 2004.

Amihai Glazer

Optimal Incentive Contracts When Workers Envy Their Boss, Presented at the Public Choice Society Meetings, Baltimore, March 2004

Battles Over Trade Protection, Presented at the Public Choice Society Meetings, Baltimore, March 2004

How Rent Seeking Can Promote Efficiency, Presented at the Public Choice Society Meetings, Baltimore, March 2004

Bernard Grofman

Rein Taagepera’s approach to the study of electoral systems. Paper presented at the Festschrift Conference Celebrating Rein Taagepera’s 70th Birthday, Tartu University, September 5-6, 2003.


Donald Hoffman

Brain Imaging Studies of Face Perception. UC Irvine.


Ellipsoidal Basis Function Networks for Classification. Navy NSWC, Panama City, Florida.

Geoff Iverson


Marek Kaminski

Workshop “Transition to Democracy”, Greece, Olympia, July 5-18, 2004 (five lectures on “Electoral Manipulation and Transition”, July 5-8)


Robin Keller


Discounting work presented at the Sixth STAR Environmental Research Seminar, October 8-9, 2003 in San Francisco.
Igor Kopylov

Southwest Economic Theory Conference, UC Irvine, Feb 28, 2004


Vladimir Lefebvre

“Mentalism and Reflexion,” invited paper at III International Symposium on Reflexive Processes and Control, Moscow, Russia, October 2003.

“Cognition and Belief,” invited paper at Rerikh’s International Center, Moscow, Russia (700 attendees), October 2003.


R. Duncan Luce


Mark Machina

Georgetown University, Department of Economics Seminar, September 4, 2003

Brown University, Department of Economics Seminar, September 8, 2003

University of Maryland, Department of Economics Seminar, September 9, 2003

Johns Hopkins University, Department of Economics Seminar, September 10, 2003

Duke University, Fuqua School of Business Seminar, September 17, 2003
University of Rochester, Department of Economics Seminar, September 19, 2003
University of Southern California, Department of Economics Seminar, November 10, 2003
Stanford University, Department of Economics Seminar, April 8, 2004
Texas A&M University, Department of Economics Seminar, April 12, 2004
University of Texas - Austin, Department of Economics Seminar, April 14, 2004
Rice University, Department of Economics Seminar, April 15, 2004
Rady Handbook of Economic Forecasting Conference, UCSD, April 16, 2004
15th Jerusalem Summer School in Economic Theory, Hebrew Univ. of Jerusalem, June 20-29, 2004

**Penelope Maddy**


**Michael McBride**


**Anthony McGann**

Public Choice Society Conference, The Calculus of Consensual Democracy, 2004

American Political Science Association Conference, Immigration and the Median Voter, 2003

Dale Poirier

European Meeting of the Econometric Society, Stockholm, Sweden, August 23, 2003

University of California, Davis, November 7, 2003

Kobe University, Kobe, Japan, December 19, 2003

“What is in a Word or Two?” University of California, Irvine, April 9, 2004

World Meeting of the International Society for Bayesian Analysis (ISBA), 2004

Vina del Mar, Chile, May 18, 2004

University of California, Riverside, June 2, 2004

Donald Saari


Banff Institute for Research Studies. (Banff, Canada) April, 2004, “A new way to analyze central configurations.”

Dept. of Economics, Universite de Caen, Caen, France, June 2004, “A new approach toward evolutionary game theory”

GEMMA, Universite de Caen, Caen, France, June 2004, “Geometry of Voting”


Ordinal and Symbolic Data Analysis: UCI, August 2003, “Symmetry and other data structures,”


Special session; AMS National Meeting, Phoenix, Jan. 2004, “Rethinking central configurations”

Workshop, Santa Fe Institute, Santa Fe, NM, April 2004, “Modeling social science issues with dynamics”
Evolutionary game theory, IMBS, UCI, March, 2004, “Toward a qualitative approach toward evolutionary game theory”

Economics, University of Cal., San Diego, December 2003, “From Arrow's Theorem to Evolutionary Game Theory”

Telecast to PR firms in 8 states including firms in Boston, Chicago, Minneapolis, San Francisco, Jan 2004, “The importance of economics and decision theory—for you”

Mathematics Dept., Cal Poly at Pomona, Feb. 2004, “Election Time! Will we elect whom we really want?”

Oberlin College, Feb. 2004:
  Public Lecture, “Another election season, but will we elect whom we really want?”
  Mathematics Dept., “Evolution of Newton's universe”
  Mathematics Dept., “Departmental discussion can be chaotic”
  Economics Dept., “Arrow's theorem: does it really mean what we have been told?”
  Mathematics Dept., Three lectures on “Chaotic dynamics and how this can be used.”

University of Nebraska, April, 2004:
  Rowlee Lecture and Tom Osborn Visiting Lecturer, “Elections! Now, that is real chaos!”
  Mathematics Dept., “The evolution of Newton's universe,”
  Economics Dept., “Arrow's and Sen's theorems: Do they really mean what we have been told?”

**Stergios Skaperdas**

Claremont-McKenna College, Economic Seminar, September 2003


Wissenschaftszentrum Berlin für Sozialforschung (Social Science Research Center Berlin), Market Processes and Governance seminar, April 2004.


Brian Skyrms

Social Software Conference Carlsberg Academy Copenhagen, Denmark. May 2004


American Philosophical Association (Eastern Meetings), December 2003.

University of Vienna Ramsey Centennary Conference, November 2003.


University of Konstanz (3 lectures), October 2003.

Washington State University, October 2003

Kenneth Small


Out on a Limb: Pricing Futures, Luncheon speaker, International Symposium on Road Pricing, Key Biscayne, Florida, Nov. 03.

Leadoff speaker, Session on Transportation Issues, Conference on Urban Sprawl and Transportation Policy, Weidenbaum Center Forum, Washington University, St. Louis, May 04.

Invited presentations at educational, governmental institutions (or similar organizations)
Univ. of Maryland at College Park, April 04
Univ. of Illinois at Urbana-Champaign, May 04
Northwestern University, Evanston, Illinois, May 04
Univ. of Texas at Austin, June 04

George Sperling


Sperling, G. 11th Joint Symposium on Neural Computation, University of Southern California, Los Angeles, California, May 15, 2004. A linear systems approach to modeling the spatial distribution of visual attention.


**Ramesh Srinivasan**

“Alternation rivalry and steady-state EEG/MEG”, Society for Neuroscience, New Orleans, LA, Nov 2003,

“Rivalry between visual streams and the cortical dynamics of conscious experience”, Association for the Scientific Study of Consciousness, Antwerp, Belgium, June 2004

**Hal Stern**


Keynote Speaker -- Fall Meeting, Southern California American Statistical Association Chapter, Pomona, CA.


“Variance Components Analysis of a Multi-Site fMRI Study”, Contributed Poster, International Society for Bayesian Analysis (ISBA) World Meeting, Vina del Mar, Chile, May 2004.

“Bayesian Exploratory Data Analysis is not an Oxymoron”, Contribution to a debate On Bayesian Exploratory Analysis, ISBA World Meeting, Vina del Mar, Chile, May 2004.

IMBS Decisions Group, University of California, Irvine, CA, December 2003.

IMBS Social Dynamics Group, University of California, Irvine, CA, February 2004

**Mark Steyvers**


University of California, San Diego. AI research seminar. “Learning about authors and documents”, May 2004.


Douglas White


Workshop Participant, Social Scaling. Santa Fe Institute. August 2003


Invited lecture, “Modeling the Dynamics of Network Formation and Evolution.” Workshop on Dynamics of groups and institutions: Their emergence, co-evolution and environment. Santa Fe Institute and the Research Centre of the Slovenian Academy of Sciences, June 2004.

Hongkai Zhao

International Conference on Numerical and Applied PDEs, Changchun, China, June 2004.

International Workshop on Wave Propagations, Beijing, China, June 2004.


Workshop on Computational Techniques for Moving Interfaces, Pacific Institute for the Mathematical Sciences, Banff, Canada, August 2003.
Applied Mathematics Seminar, Duke University, NC., November 2003

Michael Birnbaum

Research and Creative Activity Award for the School of Humanities and Social Sciences at CSUF.

Scott Brown

Award for “Teaching Excellence in Undergraduate Education”.

Carter Butts

Elected to the council of the ASA Section on Mathematical Sociology, 2004-2006.

Author/maintainer, social network analysis package of social network analysis tools for the R statistical computing system (software).

DeFigueiredo

Gh. Asachi Medal and Honorary Professor, the Technical University of Iasi (TUI), Romania.

IEEE Circuits and Systems Transactions Guillemin-Cauer Best Paper Award.

Elected Member, UN-sponsored International Informatization Academy

Elected Honorary Member, Russian Popov Society.

Member, Executive Committee for Communications and Networking, UC IUCRP (UC Industry-University Cooperative Research Program).

Katherine Faust

Editorial Boards: *Sociological Methodology, Social Networks.*
Methodology Section of American Sociological Association, board member (elected).
International Network for Social Network Analysis, Treasurer and member of Board .(elected).
Michelle Garfinkel

Editorial boards of:
  Journal of Money, Credit and Banking.
  Journal of Macroeconomics.
  Journal of Economics and Business.
  Defense and Economics.

Bernard Grofman


Donald Hoffman


Marek Kaminski

Elected affiliate member of the Department of Economics.

Robin Keller


Executive Committee, Institute for Mathematical Behavioral Sciences.

UCI Graduate Council (oversees graduate programs), Fall 2002-Spring 2004.


Decision Analysis Society of INFORMS, Past-Chair (renamed Past-President), 2002-04.

Three awards to my students based on our research collaborations: two dissertation proposal awards to Dispayan Biswas for his behavioral decision theory topic and a Decision Analysis Society student travel grant to Xiaona Zheng (to attend the October 2003 INFORMS Conference and present our EPA-funded work on “Time Weighted Utility for Multiobjective Multistakeholder Perspectives for Environmental Problems,” co-authored with me, Dipayan Biswas and Tianjun Feng).

Duncan Luce


**Mark Machina**


**Dale Poirier**

Current editorships:
- Associate Editor for *Journal of Econometrics*.
- Associate Editor for *Bayesian Analysis* (new Bayesian journal).

UCI Statistics Search Committee

**Donald Saari**

Elected to American Academy of Arts and Sciences.

Elected as Chair of the Board of Trustees, Mathematical Science Research Institute. Awarded UCI Distinguished Faculty Award for Research.

Chief Editor, *Bulletin of the American Mathematical Society*.


NRC committees: Math Science Education Board, Committee for evaluating K-12 math education, IIASA.


**Stergios Skaperdas**

Member of Program Committee: Economic Theory conference, Rhodes, Greece, July 2003.


Associate Editor, *Economics of Governance*.

Associate Editor, *Global Crime*.

**Brian Skyrms**

Elected President of the Philosophy of Science Association

**Kenneth Small**

Distinguished Transportation Research Award, Transportation Research Forum, 2004

Visiting Patterson Scholar, Northwestern University, April-June 2004

Academic Keys *Who's Who in Social Sciences Higher Education*.

Editing positions:
Associate Editor, *Transportation Research B*, 2004-

Membership on journal editorial boards:
Editorial Board, *Regional Science and Urban Economics*, 1987-
Editorial Board, *Journal of Urban Economics*, 1989-
Editorial Board, *Transportation*, 1993-

Scientific panels:

**George Sperling**

International Neural Network Society (INNS) Helmholtz Award for 2004. The Award includes a $500.00 prize and a plaque.
Editorial Board: *Journal of Vision*.

Acting editor, reviewer: Numerous journals, especially, Proceedings of the National Academy of Sciences, Vision Research.

**Hal Stern**

Member, National Academy of Sciences Panel on American Community Survey.

Committee to Visit the Department of Statistics, Harvard University.

Chair, American Statistical Association Section on Bayesian Statistical Science.

**Mark Steyvers**

Invitation to brief the Science Advisor of the President on current text-mining techniques at the Office of Science and Technology Policy (OSTP), Washington, D.C. Also present were members of the Social, Behavioral & Economic Sciences Subcommittee of the National Science & Technology Council, June 2004.


**Douglas White**

External Faculty, Santa Fe Institute, July 2004.

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

<table>
<thead>
<tr>
<th>Student</th>
<th>Advisor</th>
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<tbody>
<tr>
<td>Khalid R. Alkhater</td>
<td>Garfinkel</td>
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<tr>
<td>** Issam Alshahrouri</td>
<td>Small</td>
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<tr>
<td>Susan Anderson</td>
<td>Wright</td>
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<tr>
<td>** Greg Applebaum</td>
<td>Sperling</td>
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<tr>
<td>* Garrett Asay</td>
<td>Saari</td>
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<td>** Islam Azzam</td>
<td>Brownstone</td>
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<tr>
<td>Anna Bargagliotti</td>
<td>Saari</td>
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<tr>
<td>* Matthew Barreto</td>
<td>Grofman</td>
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<tr>
<td>Jerry Benzl</td>
<td>Kaminski</td>
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<td>* Zheng Bian</td>
<td>Braunstein</td>
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<tr>
<td>* Baishali Bakshi</td>
<td>Small</td>
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<td>** Ashish Chaturvedi</td>
<td>Skaperdas</td>
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<tr>
<td>Chi Chun Chan</td>
<td>McBride</td>
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<td>* Maia Cook</td>
<td>Hoffman</td>
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<td>** William Fitzgerald</td>
<td>Freeman/White</td>
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<tr>
<td>Seiji Fujii</td>
<td>Glazer</td>
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<td>* Scott Gaffney</td>
<td>Smyth</td>
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<td>Doug Hill</td>
<td>Skyrms</td>
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<td>** Ralph Jester</td>
<td>White</td>
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<td>Hao Jia</td>
<td>Skaperdas</td>
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<td>** Yanbo Jin</td>
<td>Keller</td>
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<td>* Rolf Johnson</td>
<td>Narens</td>
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<td>** Kelly Jonelit</td>
<td>Hoffman</td>
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<td>Jason Kronewetter</td>
<td>Saari</td>
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<td>Gabe Lawson</td>
<td>White</td>
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<td>** Jae Lee</td>
<td>Brownstone</td>
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<td>* Fabio Leite</td>
<td>Brown/Falmagne</td>
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<td>* Lingfang Li</td>
<td>Saari</td>
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<td>** Su Liu</td>
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<td>* Sachio Muto</td>
<td>Small</td>
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<td>* Colleen Nilson</td>
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<td>John Pyles</td>
<td>Hoffman</td>
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<td>** Kuntara Pukthuanthong</td>
<td>Keller</td>
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<td>Thomas Richardson</td>
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<td>** Tony Rodriguez</td>
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<td>** Daniel Salinas</td>
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<td>* Joel Schwarzbart</td>
<td>DeVany</td>
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<td>** Sandeshika Sharma</td>
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<td>* Carol Skrenes</td>
<td>Skyrms</td>
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<td>** Seiji Steinmetz</td>
<td>Brownstone</td>
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<td>** Jeffrey Stern</td>
<td>White</td>
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<td>** Carey Strumpf</td>
<td>Braunstein</td>
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<tr>
<td>Amjad Toukan</td>
<td>Skaperdas</td>
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<tr>
<td>** Chia-Huei Tseng</td>
<td>Sperling</td>
</tr>
</tbody>
</table>
* Jeremy Verlinda Poirier
** Helen Wei Small
** Hsiang Yin Saari
   Kevin Zollman Skyrms
* Huiying Zhong Braunstein

(ii) MA Degrees in Mathematical Behavioral Science During Academic 2003-04

Garrett Asay
Yan Zhang
APPENDIX G
CONFERENCES AND WORKSHOPS
**Thursday, August 21**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>8:00am - 8:45am</td>
<td>Registration: SSPA 2142</td>
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<tr>
<td>8:45am - 9:00am</td>
<td>Welcome Address by Jean-Claude Falmagne</td>
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<tr>
<td>9:00am - 2:30pm</td>
<td><strong>SESSION 1: Chair: Donald Saari</strong></td>
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<tr>
<td>9:00am - 10:00am</td>
<td>Invited Address: Donald Saari “Symmetries and Other Data Structures”</td>
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<tr>
<td>10:00am - 10:30am</td>
<td>Coffee Break/Registration SSPA 2142</td>
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<tr>
<td>10:30am - 11:30am</td>
<td>Invited Address: Olivier Hudry “Links Between Some Tournament Solutions”</td>
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<tr>
<td>11:30am - 12:30pm</td>
<td>Invited Address: Fred Roberts &quot;Voting, Meta-Search and Bioconsensus&quot;</td>
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<tr>
<td>12:30pm - 2:00pm</td>
<td>LUNCH</td>
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<td>2:00pm - 4:00pm</td>
<td><strong>SYMPOSIUM: MEDIA THEORY</strong></td>
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<td></td>
<td>Chair: Sergei Ovchinnikov</td>
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<td></td>
<td>Sergei Ovchinnikov: “Media Theory – Examples and Representations”</td>
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<td>David Eppstein: &quot;Algorithms for Media&quot;</td>
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<td></td>
<td>Yung-Fong Hsu and Michel Regenwetter: “The Tuning In and Out Model: A Random Walk and its Application to A Presidential Election Survey”</td>
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<tr>
<td>4:00pm - 4:30pm</td>
<td>Coffee Break SSPA 2142</td>
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<tr>
<td>4:30pm - 6:30pm</td>
<td><strong>SESSION 2: Chair: Robert E. Jamison</strong></td>
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<tr>
<td>4:30pm - 5:30pm</td>
<td>Bernard Fichet: “The Twenty Two Minimal Dichotomy Decompositions of the Equilateral Distance on Five Points”</td>
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<tr>
<td>5:30pm - 6:00pm</td>
<td>Open Session: Random Talks</td>
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7:00pm – 10:00pm Banquet Dinner:
Kitayama Japanese Restaurant
Newport Beach

Friday, August 22

9:00am - 12:30pm
SESSION 1: Chair: Kenneth Bogart

9:00am - 10:00am Invited Address: Kenneth Bogart
“Interval Orders and their Higher Dimensional Analogs”

10:00am - 10:30am Coffee Break SSPA 2142

10:30am - 11:30am Invited Address: Robert E. Jamison
“Trees Invariant Under a Half-Turn”

11:30am - 12:30am Invited Address: Edwin Diday
“Tessellation of Concepts by Spatial Clustering in Symbolic Data Analysis”

12:30pm - 2:00pm LUNCH

2:00pm - 4:00pm SYMPOSIUM: ORDER POLYTOPES
Chair: Jean-Paul Doignon

Sergei Ovchinnikov:
“Weak Order Cubical Complexes”

Samuel Fiorini:
“Turning Factor-Critical graphs into Facets of the Linear Ordering Polytope”

Reinhard Suck:
“Categorical Judgement in the Random Utility” Framework”

4:00pm - 4:30pm Coffee Break SSPA 2142

4:30pm - 6:00pm SESSION 2: Chair: Michel Regenwetter

4:30pm – 5:00pm Mireille Gettler Summa:
“Distribution Analysis on Gene Arrays Through Symbolic Data Analysis”

5:00pm – 5:30pm Patrice Bertrand:
“On Interval-families, Transitive Orientations and Gall Arc-equivalence in Graphs”

5:30pm - 6:00pm Alex Grossman:
"A Rank-based Classification Method Applied to Biological
Sequence Data"

6:00pm - 6:30pm  Open Session: Random Talks

Saturday, August 23

9:00am - 12:30am  SESSION 1: CHAIR: MEL JANOWITZ

9:00am - 10:00 am  Invited Address: Mel Janowitz
“A Natural Classification of Isotone Real Mappings”

10:00am - 10:30 am  Coffee Break SSPA 2142

10:30am - 11:30 am  Invited Address: Marc Pirlot
“Preferences for Multi-Attributed Alternatives: Traces, Dominance, and Numerical Representations”
(work by Denis Bouyssou and Marc Pirlot)

11:30am – 12:30pm  Invited Address: Michel Regenwetter
"Aggregation of Probabilistic Ordinal Preferences"

12:30am - 2:00 pm  LUNCH

2:00am - 6:00pm  SESSION 2: CHAIR: FRED ROBERTS

2:00pm – 3:00pm  Invited Address: Rudolf Wille
"Formal Concept Analysis as Basis for Ordinal Data Analysis"

3:00pm – 3:30pm  Coffee Break SSPA 2142

3:30pm – 6:00pm  Jean-Paul Doignon:
"Counting Structures of Preference"

Thierry Marchant:
“Measurement Based on Classes”
(work by Denis Bouyssou and Thierry Marchant)
## Friday

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Affiliation</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00—1.40 pm</td>
<td>Joerg Oechssler</td>
<td>(University of California, Santa Barbara)</td>
<td>“Imitation – Theory and Experimental Evidence,” (joint with Jose Apesteguia and Steffen Huck)</td>
</tr>
<tr>
<td>1.40—2.20 pm</td>
<td>Wei Li</td>
<td>(University of California, Riverside)</td>
<td>“A Model of Gossip”</td>
</tr>
<tr>
<td>2.20—3.00 pm</td>
<td>Juan Carrillo</td>
<td>(University of Southern California)</td>
<td>“A Theory of Influence,” (joint with Isabelle Brocas)</td>
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<tr>
<td>3.00—3.30 pm</td>
<td><em>BREAK</em></td>
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<tr>
<td>3.30—4.10 pm</td>
<td>Vineet Kumar</td>
<td>(University of California, San Diego)</td>
<td>“Rate of Return Dominance in Walrasian Monetary Equilibrium,” (joint with Starr Ross)</td>
</tr>
<tr>
<td>4.10—4.50 pm</td>
<td>Luisa Lambertini</td>
<td>(University of California, Los Angeles)</td>
<td>“Is There a Risk-Premium Puzzle?” (joint with Costas Azariadis)</td>
</tr>
<tr>
<td>4.50—5.30 pm</td>
<td>Christopher Chambers</td>
<td>(California Institute of Technology)</td>
<td>“Multi-Utilitarianism in two-Agent Quasilinear Social Choice”</td>
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<tr>
<td>5.30 pm</td>
<td><em>DINNER--SSPB 1208</em></td>
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## Saturday

**28th February**

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<tr>
<th>Time</th>
<th>Presenter</th>
<th>Affiliation</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>8.30—9.05 am</td>
<td>John Wooders</td>
<td>(University of Arizona)</td>
<td>“Auctions with a Buy Price,” (joint with Stanley S. Reynolds)</td>
</tr>
<tr>
<td>9.05—9.40 am</td>
<td>Jinwoo Kim</td>
<td>(University of Southern California)</td>
<td>“Interdependent Value Auctions with Insider Bidders”</td>
</tr>
<tr>
<td>9.40—10.15 am</td>
<td>Stan Reynolds</td>
<td>(University of Arizona)</td>
<td>“Supply Function Equilibria with Pivotal Suppliers,” (joint with Talat Genc)</td>
</tr>
<tr>
<td>10.15—10.35 am</td>
<td><em>BREAK</em></td>
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<tr>
<td>10.35—11.10 am</td>
<td>Mark Johnson</td>
<td>(Arizona State University)</td>
<td>“The Structure and Two Complexities of Economic Choice Semiautomata”</td>
</tr>
<tr>
<td>11.10—11.45 am</td>
<td>Steven Scroggin</td>
<td>(University of California, San Diego)</td>
<td>“Bounded Rationality in Randomization”</td>
</tr>
<tr>
<td>11.45—12.20 pm</td>
<td>Igor Kopylov</td>
<td>(University of California, Irvine)</td>
<td>“Subjective Probabilities on ‘SMALL’ Domains”</td>
</tr>
</tbody>
</table>
12.20—2.00 pm  **LUNCH**

2.00—2.35 pm  **Gary Charness**  (University of California, Santa Barbara)
“Group Play in Games and the Role of Consent in Network Formation,” (joint with Matthew O. Jackson)

2.35—3.10 pm  **Santanu Roy**  (Southern Methodist University)
“The Economics of Controlling a Biological Invasion,” (joint with Lars J. Olson)

3.10—3.45 pm  **Isabelle Brocas**  (University of Southern California)
“Multi-agent Contracts with Positive Externalities”

3.45—4.20 pm  *BREAK*

4.20—4.55 pm  **Ichiro Obara**  (University of California, Los Angeles)
“The Full Surplus Extraction Theorem with Hidden Actions”

4.55—5.30 pm  **Richard Scheelings**  (University of California, Los Angeles)
“Spousal Guarantees”

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**Conference on EVOLUTIONARY GAME THEORY**
March 19-20, 2004

**BECKMAN CENTER BOARD ROOM**

**FRIDAY, MARCH 19**

1:00-2:00  Simon Levin – "Towards an Evolutionary Ecology of Ecosystems and the Biosphere"

2:15-3:15  Ted Bergstrom – “Storage for Good Times and Bad: A Tale of Rats and Men”

3:30-4:00  Coffee Break

4:00-5:00  Brian Skyrms – "Learning to Network"

5:15-6:15  Silke Rolles – "An Infinite Stochastic Model of Social Network Formation"
6:30 DINNER - BECKMAN CENTER DINING ROOM

SATURDAY, MARCH 20

9:00-10:00 Morris Hirsch – "A Smale type solution for multiplayer Prisoners Dilemma"

10:15-10:30 Coffee Break

10:30-11:30 Peyton Young – "Learning Nash Equilibrium"

11:45-1:30 LUNCH – BECKMAN CENTER DINING ROOM

1:30-2:30 Susan Holmes – "Interaction Networks in Biology"

2:45-3:00 Coffee Break

3:00-4:00 John Duffy – "Experiments with Network Formation"

4:15-5:15 Donald Saari – "Toward a Qualitative Evolutionary Game Theory"

The Second Annual Graduate Student Conference on Social Choice and Behavioral Sciences

Sponsored by the Institute for Mathematical Behavioral Sciences

April 28th, 2004
Social Science Plaza A, room 2112

CONFERENCE MISSION
We would like this conference to be a forum for promoting interaction among graduate students researching in similar fields. The conference will also be an excellent opportunity to learn about the on-going research in the growing field of mathematical behavioral sciences.

Section 1 Chair – Garrett Asay

10:00 – 10:30 Jason Kronewetter (Mathematics) - “Decisions on a Continuum of Choices”

10:30 – 11:00 Lingfang (Ivy) Li (Economics) - “Geometric Proof and Resolution of Sen’s Theorem”

15 minute break

Section 2 Chair – Lingfang (Ivy) Li
11:15 – 11:45 **Douglas E. Hill** (Logic & Philos. of Sci.) - “Cooperation, Institutions and Errors: The Leviathan Verses the Champagne Fairs”

11:45 – 12:15 **Anna Bargagliotti** (Mathematics) - “The Solution Process”

12:15 – 1:15 Lunch

*Section 3 Chair – Anna Bargagliotti*

1:15 – 1:45 **Fabio Leite** (Cognitive Sciences) - “Investigating the Effects of Input-Strength Variability on Reaction Time”

1:45 – 2:15 **Kevin Zollman** (Logic & Philos. of Sci.) - “Talking to Neighbors: The Evolution of Regional Meaning”

15 minute break

*Section 4 Chair – Jason Kronewetter*

2:30 – 3:15 **Amjad Toukan** (Economics) - “Privately Held or Publicly Owned? Large Shareholders and the Struggle for Corporate Control”


3:45 – 4:15 **Garrett Asay** (Economics) - “Negative Campaigning: A Newsworthy Strategy?”
SOCIAL SCIENCE PLAZA A ROOM 2112

FRIDAY, MAY 7

1:00 – 2:00  **Professor Peter Wakker** (Department of Quantitative Economics, Maastricht University, The Netherlands)
“Psychology’s Diminishing Sensitivity versus Economic’s Intrinsic Utility of Money: How the Introduction of the Euro Can Be Used to Disentangle the Two Empirically”

2:15 – 2:30  * BREAK * - SSPA 2142

2:30 – 3:30  **Professor Michael Birnbaum** (Department of Psychology, California State University, Fullerton)
“New Paradoxes of Choice that test RDU and Prospect Theories”

3:45 – 4:45  **Professor John Dickhaut** (Carlson School of Management, University of Minnesota)
“Anomalies of Individual Behavior in Auctions”

SATURDAY, MAY 8

9:15 – 10:15  **Professor Craig Fox** (Anderson School of Business, UCLA)
“Judgment under uncertainty: Arbitrary partitions and insufficient reason”

10:30 – 10:45  * BREAK * - SSPA 2142

10:45 – 11:45  **Professor Edi Karni** (Department of Economics, Johns Hopkins University)
“Subjective Expected Utility Theory Without States of the World”

12:00 – 2:00  * LUNCH *

2:00 – 3:00  **Professor Shlomo Benartzi** (Anderson School of Management, UCLA)
“Participants’ Behaviour in Retirement Savings Plans”

3:15 – 3:30  * BREAK * - SSPA 2142

3:30 – 4:30  **Professor Craig McKenzie** (Department of Psychology, UC San Diego)
“Framing Effects and Information Leakage”