

## **“The Formal Modeling and Analysis of Color Categorization: Innovations and Insights since Berlin and Kay (1969)”**

A seminal cross-linguistic study of color naming and categorization that was published in 1969 by Brent Berlin and Paul Kay has been one of the most influential works in contemporary psychological science. Its influence spans a wide range of disciplines including Anthropology, Linguistics, Computer Science, Cognitive Science, Physics, Robotics, and Logic and Philosophy of Science. It boasts an impressive citation index in that it exceeds on the order of 6 standard deviations (over 5,600 citations, where most works on 1 in 10,000 have more than 100 citations) compared to the typical number of citations for a work of its kind. It has been instrumental in clarifying our current theories concerning how human cognition generally finds ways to categorize and label things in the world, and the ways these categorization systems are influenced by environments, culture and language.

Much empirical work was done to follow up and expand on the original Berlin and Kay (1969) investigations -- for example subsequent World Color Survey and Mesoamerican Color Survey. But in the last decade major efforts have brought to bear new advances in data handling, analysis, methodology and modeling, which has led to advances in the scope and understanding of the wealth of data that has emerged from the original idea initiated by the Berlin and Kay (1969) research.

### **A conference emphasizing Formal Advances, Innovations & Insights in Recent Color Categorization Research:**

With the aim of further fostering and communicating extensive research progress that has recently been seen in the area of color categorization and naming, The Institute for Mathematical Behavioral Sciences will host a two-day conference entitled: “The Formal Modeling and Analysis of Color Categorization: Innovations and Insights since Berlin and Kay (1969)”.

The Institute for Mathematical Behavioral Sciences Fall 2018 conference draws from a highly interdisciplinary group of top-tier modelers and researchers actively working in the area of color naming, categorization, and evolution, representing a variety of disciplines that include Anthropology, Linguistics, Computer Science, Cognitive Science, Physics, Robotics, and Logic and Philosophy of Science.

The two-day conference to be held in 2018 on November 2nd & 3rd, will highlight some of the state of the art science nearly 50 years since the most influential work in the area, as seen through (1) recently established public access archival databases (such as the UC Berkeley’s World Color Survey and the UC Irvine’s R.E. MacLaury

Color Categorization Archive), (2) significant research progress using computational approaches that employ evolutionary game-theory simulation investigations of color categorization system learning, and (3) insights and rigorous modeling and methodological advances contributed through the mathematically-based cross-linguistic comparison of shared color naming systems.

The preliminary presenter list includes the two original developers in the area who published the famous 1969 book entitled "Basic Color Terms: Their Universality and Evolution", namely, Brent Berlin (Anthropologist, U. of Georgia), and Paul Kay (Linguist, UC Berkeley), both National Academy of Sciences and American Academy members.

Other leading experts in the area who are invited participants include Terry Regier (Linguist and Computer Scientist, UC Berkeley), Richard Cook (Computer Science & Linguistics, UC Berkeley), Galina Paramei (Color Vision Science, Hope University, UK), and David Bimler (Psychometrics and Perception, Massey University, NZ). Bevil R. Conway (Psychophysicist, NIH, Bethesda, MD), Delwin Lindsey (Psychology, The Ohio State University), Angela Brown (Ophthalmology, The Ohio State University), Michael Webster (Foundation Professor in Cognitive Science, University of Reno, NV).

Notable UC Irvine participants expected to participate are A. Kimball Romney (NAS & AA member, IMBS Professor Emeritus, UCI) Kimberly A. Jameson (IMBS), Louis Narens (Cognitive Sciences & IMBS), Natalia Komarova (Mathematics), Sergio Gago (Computer Sciences), Maryam Gooyabadi (IMBS), Kirbi Joe (IMBS), Nicole Fider (Mathematics), as well as other members of the UCI community. The conference is supported by the Institute of Mathematical Behavioral Sciences and is a product of a National Science Foundation Award (2014-2018) on the topic of the evolution of color categorization and naming systems (#SMA-1416907, PI Jameson).