

The Irvine Division of the Academic Senate of the University of California
is pleased to present its Distinguished Faculty Awards for 2011-2012

MONDAY, DECEMBER 5, 2011

4:30 p.m.

UCI University Club

Michael D. Cahalan

Distinguished Professor of Physiology and Biophysics

The recipient of the Distinguished Faculty Award for Research
will present a lecture:

ION CHANNELS AND LYMPHOCYTE DYNAMICS

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In addition, the following Senate Awards for 2011-2012 will be presented:

Natalia L. Komarova

Professor of Mathematics

Distinguished Mid-Career Faculty Award for Research

Susan S. Huang

Professor of Medicine

Distinguished Assistant Professor Award for Research

Farghalli A. Mohamed

Professor of Chemical Engineering & Materials Science

Distinguished Faculty Award for Teaching

Christine Sütterlin

Professor of Developmental & Cell Biology

Distinguished Assistant Professor Award for Teaching

Donald G. Saari

UCI Distinguished Professor of Economics and Mathematics

Daniel G. Aldrich Jr. Distinguished University Service Award

Peter Krapp

Professor of Film & Media Studies

Distinguished Mid-Career Faculty Award for Service

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Chancellor Michael V. Drake cordially invites you
to a reception immediately following the lectures.

Distinguished Faculty Award for Research

Michael D. Cahalan Distinguished Professor of Physiology & Biophysics

After graduating from Oberlin College, I arrived at the University of Washington in 1970 with the intention of pursuing brain research in graduate school. I consider myself very lucky to have wound up instead working on single neurons in the laboratory of Dr. Bertil Hille, when ion channels were first being considered as molecular entities. I pursued postdoctoral work on squid giant axons at the Marine Biology Laboratory in Woods Hole with Dr. Clay Armstrong. During a recruitment visit to UCI, I “discovered” the existence of a large squid fishery (squid are not fish of course, but anyway) in the waters near Catalina Island. Shortly after I joined the faculty in 1977, still determined to work on squid axons and with encouragement from Dr. Stephen White, I secured the usage of a very fine 40-foot power boat that had been donated to UCI, recruited a student to become the captain, learned how to catch squid, constructed a large sea-water system, built my physiological setups, and invited friends to work at UCI. This worked well for a few years, and I fondly remember boating adventures, beach barbecues, and interesting experiments. But then, in the winter of 1981, El Nino put an end to this line of research.

When changes in the local water temperature caused the local squid to vanish, I decided to work on cells I could carry anywhere with me – my own blood cells. I used a new method to record the electrical signature of ion channels in small cells. I soon figured out that working on the immune system could be great fun at the level of single cells, and that T cells were Terrific. Among other scientific adventures I discovered several new types of ion channel, found toxins from venomous animals that could block potassium channels and inhibit T cell functions, and unraveled the role of calcium in lymphocyte activation. My talk will highlight the role of luck and persistence during my 20-year personal quest for the molecular identity of the lymphocyte calcium channel, and in imaging the cellular dynamics of the immune response.

Over the past 30 years at UCI, I have participated in a series of discoveries that originated from the simple goal of studying immunology at the level of single cells. The work has broadened the scope of ion channels to include new signaling pathways and novel cellular functions. Ion channels in lymphocytes now offer exciting targets for therapy of autoimmune disorders. We also discovered new ways to image immune cells in vivo. This approach has revealed an elegant cellular choreography that underlies the immune response.

Throughout these studies, all conducted here at UCI, I have benefitted enormously from collaborations with outstanding UCI colleagues. In particular, I wish to acknowledge the contributions of Professors George Chandy and Ian Parker. My laboratory's research is supported by two NIH grant awards, both still active after 28 and 33 years of continuous funding. The collective work of a talented group of postdocs and graduate students in my lab is represented by more than 150 peer-reviewed publications. Over the past ten years, I have presented more than 100 talks at Symposia and invited seminars. I am fortunate and proud to have served as Chair of my Department for more than ten years. I have taught the basics of cardiac physiology to more than 2500 medical students who are now physicians in the state of California. I have tried to communicate the excitement of scientific discovery to graduate students. I was elected to the U.S. National Academy of Sciences in 2010.

Finally, I would like to thank the Academic Senate and the UCI faculty community for the honor of this Award.

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Distinguished Mid-Career Award for Research

Natalia L. Komarova
Professor of Mathematics

I was born in Moscow, and got my first Master's degree in Theoretical Physics from Moscow State University. I came to the US in 1993 to work on my PhD with Alan Newell at the Program in Applied Mathematics, University of Arizona. My thesis, entitled "Essays on nonlinear waves", was about pattern formation in the natural world. I spent my postdoctoral years at the Institute for Advanced Study in Princeton, where I met Martin Nowak and started working on biological applications of mathematics. I got my first faculty job at the Mathematics Department at Rutgers, and came to UC Irvine in 2004, to be together with my husband. UC Irvine has proven to be a really great solution to our "two-body problem". I have received strong and continuing support from my colleagues in the Mathematics Department, as well as people across campus. I have found collaborators that inspire and support my research. It is through collaborations like this that interdisciplinary research can thrive.

In the last 7 years I continued to be interested in problems that arise at the interface between mathematics and the life sciences. I have been lucky to work on many exciting questions, for example: How do humans see and categorize colors? How can eavesdropping influence the evolution of language? How can viruses be used to treat cancer? Can cell-cell collaboration change the laws of evolution? How many drugs should be combined to treat leukemia? Is Alzheimer's disease a homogeneous condition or does it vary from person to person? I try to find interesting patterns in the natural world. I continue to find mathematical beauty in applications. At the same time I try to make my work relevant, and useful, for the people.

My other accomplishments are a couple of books, and four children, Sophia, Paulina, Maria and Christina.

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Distinguished Assistant Professor Award for Research

Susan S. Huang
Professor of Medicine

It is a tremendous honor to receive this award from the UCI Academic Senate. I am incredibly grateful to be a part of the vibrant UCI academic community. I was recruited to the Division of Infectious Diseases in the UCI School of Medicine in 2007 to serve as the Medical Director of Epidemiology and Infection Prevention, and to continue my research on healthcare associated infections, including those due to antibiotic resistant bacteria ("superbugs") such as methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant enterococcus (VRE). It is my hope is to eradicate MRSA and to reduce healthcare-associated infections to their lowest practicable level.

Having grown up in Los Angeles, it was a welcome return to Southern California. I went to medical school at Johns Hopkins in Baltimore, completed internship and residency at UCSF, and then pursued a Masters in Public Health at the Harvard School of Public Health along with my Infectious Diseases fellowship at the joint Harvard program at Brigham and Women's Hospital and Massachusetts General Hospital in Boston. After four-years as junior faculty at Harvard, I was excited to join the infectious diseases faculty here at UC Irvine Health.

My research initially focused on the risk factors for acquiring MRSA and VRE in hospitals and nursing homes and finding practical ways to prevent acquisition. I was particularly interested in what happened to patients who harbored MRSA and VRE, and their risk for short and long-term infection both within and beyond hospital walls. The substantial risks led me to evaluate several strategies to mitigate transmission and disease, including screening patients for antibiotic-resistant pathogens, instituting contact precautions, and enhancing environmental cleaning.

The study of risks and prevention of antibiotic-resistant pathogens in single hospitals naturally leads one to question whether more can be gained when hospitals and nursing homes that share patients work together. To understand the value of cooperation across healthcare facilities, my research team has built a population laboratory in Orange County. We have collected detailed data from nearly all hospitals and nursing homes in this county, including extensive details on inter-facility patient sharing, infection control practices, and estimates of pathogen burden. We have collected thousands of representative bacterial strains for genetic typing. These detailed population data have enabled a series of dynamic mathematical transmission models of Orange County facilities built through the NIH Models of Infectious Disease Agent Study (MIDAS) collaborative. These models allow simulation of intervention strategies to reduce transmission and disease burden for MRSA and other pathogens. We are able to gain insight into inter-facility spread and containment of these pathogens, and measure the degree of synergy when preventative measures are applied across hospital networks, affiliated nursing homes, and surrounding communities.

This past year, I have had the great fortune of being selected as one of 12 recipients of the national CHOICE award – a federally funded \$10 million grant to compare best practice strategies among the most important questions remaining in medicine today. Through this award, we have launched a randomized controlled trial to compare education versus soap and medicine to remove MRSA from the body of recently discharged patients known to harbor this pathogen. In addition, I have the honor of leading another landmark trial evaluating the use of soap and medicine to decolonize MRSA carriers in nearly 75 ICUs across 42 U.S. hospitals.

These research experiences have opened the door to national service and opportunities to influence guidelines and best practice. I was appointed by Kathleen Sebelius to the Healthcare Infection Control Practices Advisory Committee, a 14-member federal advisory committee to the CDC and Department of Health and Human Services. I currently serve as an Academic Councilor and Board member of the Society for Healthcare Epidemiology of America, and chair the Metrics Group for California Healthcare Associated Infections, an advisory group to the California Department of Public Health. These opportunities fuel my hope to eradicate MRSA and other healthcare-associated pathogens by discovering best strategies and emphasizing the need for healthcare facilities to actively work together to combat contagious diseases.

Distinguished Faculty Award for Teaching

Farghalli A. Mohamed Professor of Chemical Engineering & Materials Science

My name is Farghalli A. Mohamed. I ask my students, undergraduate and graduate, and the Staff in the School of Engineering to call me "FAM." I tell them at UCI we are one FAMily. I do not like to be called "Professor" or "Doctor" since these titles may serve as a barrier in communication. I believe in respecting a person for how he or she does his or her job, not for title or rank

I received my undergraduate training in Metallurgical Engineering from Cairo University, Egypt. I came to Berkeley, California in 1968, where I attended the University of California, Berkeley (UCB). I received my Ph.D. in Materials Science and Engineering with minors in Mathematics and Mechanical Engineering in 1972. I joined the University of Southern California, Los Angeles, initially as a research associate for two years, and then as an Assistant Professor. In 1980, I came to UCI where I joined Mechanical Engineering as a faculty member. At that time, the School of Engineering was very small, having only 12 faculty members.

When I was a high school student in Egypt, I developed a strong desire in explaining mathematics concepts and physics fundamentals to my friends who were not doing well in their studies and whose families could not afford paying for tutoring. I was happy to have the opportunity to serve them as a "helper." I was even happier when some of them did well and passed tests. That was the beginning of my "love story" for teaching.

My classroom style is shaped by a deep affection for teaching. I "love" to teach because I am hoping that I can make a difference in the life of some of the students. I "love" to teach because I enjoy interacting with people of the future.

In teaching my courses, I am driven by two strong beliefs: (a) my belief that research and teaching are inseparable, the former generates new knowledge and the later transmits such knowledge, and (b) my belief that teaching is not merely giving a lecture or meeting students during office hours, but it is devoting efforts to helping students develop their identity and interests.

I care for students and their performance. I treat students as if they were my sons and daughter (I have only daughters). I feel they need support, encouragement, advice, guidance, motivation, and compliment. I would like to share my laughs with students. I encourage students to ask questions in class. We learn more from the answers of questions than from reading. I am eager to meet with them in groups or individually so that I can listen to their concerns and inquiries. I do my best to make the learning process fun despite the boring nature of some of the topics I cover. At end of every week, I tell them the "Joke of the Week" and the "Wisdom of the Week."

I have been a strong advocate of incorporating undergraduates in graduate research programs either through undergraduate research opportunities, summer research, or independent work. Every year, I have been successful in attracting undergraduates who, as a result of their work in my laboratories, gain practical experience in areas that would enhance their opportunities to secure future professional careers.

Several years ago, I experienced a proud moment in my professional life as a teacher at UCI when one of the students I taught and mentored completed her B.Sc degree in mechanical Engineering. She was determined to continue her studies for a Ph.D. despite the fact she was legally blind. She joined my research group after unsuccessful attempts to find a faculty advisor. She completed her Ph.D. degree with me. At that time, I felt that she proved to others, even to her family, that despite limitations, determined people could succeed in achieving their dreams. I felt a sense of pride that I was blessed with the opportunity of supervising this young woman who believed in herself despite all odds.

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Distinguished Assistant Professor Award for Teaching

Christine Sütterlin Professor of Developmental & Cell Biology

In the modern UC system, it is becoming more and more challenging to create an effective learning environment. Class size keeps increasing, making it difficult to have one-on-one interactions with our students and to get to know them. In addition, limited teaching assistant and administrative support makes it hard to accommodate the after-class needs of each student. Finally, the students themselves are distracted, and we have to compete for their attention against a background of text messages, YouTube videos, internet surfing and occasional phone calls. Times have changed since I was a student!

My overall teaching goal is to give the students a positive and enjoyable learning experience. Enthusiasm on my side appears to be a key factor for gaining the students' attention and for getting them interested. I convey the material by focusing on the big concepts and not its minute details. This helps with their overall understanding and prevents them from getting lost in the details. I also try to point out the significance of the material. Since I teach cell biology, I can put each topic into the context of health and disease. We have a "disease of the day", which gets the students excited so that they will want to share what they have learned with their family and friends. "Guess what I learned in class today...". In addition, I use such diseases to challenge the students to apply and integrate what they just learned. All these elements help to have a class full of active and engaged students, and not a passive audience.

While our classes have been getting bigger and bigger, I have been able to mitigate some of the negative effects by utilizing technological solutions. For example, I am a strong proponent of the audience response system (iclickers), in which each student uses a handheld control to select one of several responses to a question, with the results being collated and displayed on the lecture hall screen instantly. With these iclickers, I can get students to participate actively and to voice their opinions. In addition, they allow me to evaluate if the class understands the material. If too many students score poorly on a clicker question, I can immediately try to remedy the situation by explaining the concept again or in a different way. I also like to provide visuals, such as movies and experimental data, to support the concepts discussed in class and to make the material more accessible to the students. Finally, I try to meet the students' needs after class time by using an electronic noteboard. This EEE website is an instructor-supervised online forum that allows students to post their questions as well as to answer other students' questions. It provides a practical alternative to answering questions by email, which has become unworkable with a class of several hundred students. This noteboard has even allowed me to identify some students who are particularly good and helpful about answering other students' questions. I have encouraged them to become peer tutors because they may be the teachers of tomorrow.

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Daniel G. Aldrich Jr. Distinguished University Service Award

Donald G. Saari UCI Distinguished Professor of Economics and Mathematics

I was born and raised in a beautifully forested region bordered by the frigid waters of Lake Superior. This area of the Upper Peninsula of Michigan is so far north that about half of the Canadian population lives to the south of us, it is not unusual to get over 30 feet of snowfall, and, when I was growing up, the nearest stop-light over 100 miles away almost became a tourist attraction. An idyllic youth packed with athletics, camping, friends, academics, and most surely too much fun. Graduate studies in mathematics introduced me to the Newtonian N-body problem complete with those mysteries about dark matter, the motions of galaxies, stars, and collisions of Newtonian bodies. I continue to explore this, my first academic love.

Then, well, when it started it was something occasionally done only during weekends; I knew I could control it. But no; it became an addiction that spread into week nights. Finally, it seized my life: the mathematics of the social and behavioral sciences. What wonderful intellectual challenges that differ so significantly from my work in the physical sciences! Adding to the pleasure was when Duncan Luce recruited me from Northwestern University to UCI, the Mecca of this area where the faculty in our School of Social Sciences and the Institute for Mathematical Behavioral Sciences have developed, and continue to define the cutting edge for several of these themes of international importance. The move my wife and I made to the West has been personally and professionally rewarding with so much learned from new colleagues.

Adding to my delight is the Aldrich award! What makes receiving the Aldrich award so humbling is the list of previous awardees; an impressive assembly of individuals who have contributed so much toward making UCI what it is today. What adds significantly to the award is that the nomination reflects the initiative and efforts of colleagues: I do not know who you are, but you have my deep thanks!

These efforts of my colleagues reflect what makes UCI so special. It is this willingness to help others, to cooperate in addressing departmental, school, and university issues, to introduce new directions to keep our research on the edge and our students competitive, to help colleagues with subtle complexities of their research, and to work anonymously to promote the recognition of colleagues, that defines what I have found to be the collegial spirit of UCI. This constructive social norm is critical for the advancement and development of a university; it is crucial to ensure that UCI continues its drive for excellence through the current challenging times. My hope is that, at least in a small way, I have contributed to these efforts and this positive spirit.

My deep thanks to all who nominated me and to the committee that selected me. As always, my deepest thanks go to my wife and best friend Lillian who helps to make so much possible.

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Distinguished Mid-Career Award for Service

Peter Krapp
Professor of Film & Media Studies

My path to UC Irvine took many turns. As a fellow of the Adenauer Foundation, I enrolled at Bonn, a large traditional German university. The German Academic Exchange Service sent me to Britain, where I took an MPhil from Stirling, a university started in 1967 on a Scottish estate. I returned to Germany funded by the German National Science Foundation in the center for Theory of Literature and Communication at Konstanz; I filed my dissertation on media history and cultural memory in 2000 at UC Santa Barbara. Although I held non-academic jobs between and after those stints, I taught at the University of Minnesota and at Bard College before joining UCI's department of Film & Media Studies.

Media studies concerns the ways in which we store, process, and transmit information, from the invention of writing to stenography and from the printing press to typewriters and copying machines, from idiosyncratic private collections to computerized databases, from library catalogs on the backs of playing cards to office machines with punched cards, from silent film to cable TV and to the irreducible difference networked computers make in human culture. Universities have played a central role in this history, curating cultural memory and spurring innovation, fostering translation and public access while protecting channels of privileged communication. Keeping and sharing information across time and space is at the core of higher learning.

Shared governance is a great way to learn how information and funding flow in academia. For UC, I was a member and then chair of the system-wide University Committee on Planning and Budget, a member of the Academic Council and of senate-administration task forces at UCOP on national lab issues, professional programs, faculty salary scales, industry relations, academic planning, and budget strategy; I was also appointed to the Funding Strategies Work Group of the Gould Commission. For the Irvine campus, I was a member and then chair of the Council on Planning and Budget, serving on the Senate Cabinet and on the Academic Planning Group, the WASC review steering committee, the Space Planning Team, a Workgroup on Indirect Cost Recovery, the Physical and Environmental Committee, and an Ad Hoc Committee on the College of Health Sciences. In addition, I sat on the EVC's Budget Work Group and participated in the search for a Vice Chancellor. For the school of Humanities, I served as faculty chair, as member of the Humanities Executive Committee, as chair of the Computing and Humanitech Advisory Committee, and as a member of the Dean's Advisory Group. At each level, shared governance is critically important to preservation of academic quality, now more than ever.

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