

Awards of the American Control Council

*The **Richard E. Bellman Control Heritage Award** is given for distinguished career contributions to the theory or application of automatic control. It is the highest recognition of professional achievement for US control systems engineers and scientists.*

Dr. W. Harmon Ray is Vilas Research Professor and past chairman of the Department of Chemical Engineering at the University of Wisconsin in Madison. He received his B.A. and B.S.Ch.E. from Rice University and his Ph.D. from the University of Minnesota in 1966. Before joining the University of Wisconsin he was a faculty member at the University of Waterloo in Canada, from 1966 to 1970, and at the State University of New York at Buffalo, from 1970 to 1976. Professor Ray has had extensive industrial consulting experience, and has contributed numerous articles to the technical literature in the areas of polymerization processes, chemical reaction engineering, process modelling, optimization, and process dynamics and control. He is co-author of a monograph, *Process Optimization*, published in 1973, and author of *Advanced Process Control* which appeared in 1981. This latter book has been published in Russian and Chinese. Professor Ray is also co-editor of two volumes: *Distributed Parameter Systems* (1978), and *Dynamics and Modelling of Reacting Systems* (1980). More recently, he is the coauthor of the textbook, *Process Dynamics, Modeling, and Control* (1994). In 1969, Professor Ray received the D. P. Eckman Award of the American Automatic Control Council and spent a year, in 1973-74, as a Guggenheim Fellow in Europe. In 1981 he received the Arthur K. Doolittle Award of the Organic Coatings and Plastics Division of the American Chemical Society and also the Automatica Prize Paper Award of the International Federation of Automatic Control. In addition, he was the recipient of the 1982 Professional Progress Award of the American Institute of Chemical Engineers. In 1989 Prof. Ray received the Control Education Award from the American Automatic Control Council. Professor Ray has been a distinguished lecturer at a number of universities including the Lacey Lectures at Caltech, the Reilly Lectures at Notre Dame, the Kelley Lecture at Purdue, and the Sargent Lecture at Imperial College London. Prof. Ray is a Fellow of AIChE, and a member of the National Academy of Engineering.



*The **Donald P. Eckman Award** recognizes an outstanding young engineer in the field of automatic control. The recipient must be younger than 35 years at the time of the award.*

Richard D. Braatz received the B.S. degree from Oregon State University in 1988 and the M.S. and Ph.D. degrees from the California Institute of Technology in 1991 and 1993, respectively. After a postdoctoral year at DuPont studying various control problems including polymer film extrusion control, he joined the faculty at the University of Illinois at Urbana-Champaign where he is currently an Associate Professor. Professor Braatz received the Hertz Doctoral Thesis Prize in 1993, the DuPont Young Faculty Award in 1995, and the Xerox Award for Faculty Research in 1999. He is an author of "Data-driven Techniques for Fault Detection and Diagnosis in Chemical Processes" (Springer Verlag 2000).



*The **John R. Ragazzini Award** is given to recognize outstanding contributions to automatic control education in any form. These contributions can be from any source and in any media, i.e., electronic, publications, courses, etc.*

Hassan K. Khalil received the B.S. and M.S. degrees from Cairo University, Cairo, Egypt, and the Ph.D. degree from the University of Illinois, Urbana-Champaign, in 1973, 1975, and 1978, respectively, all in Electrical Engineering. He has published several papers on singular perturbation methods, decentralized control, robustness, nonlinear control, and adaptive control. He is the author of the book *Nonlinear Systems* (MacMillan, 1992; Prentice-Hall, 1996), coauthor with P. Kokotovic and J. O'Reilly, of the book *Singular Perturbation Methods in Control: Analysis and Design* (Academic Press, 1986; SIAM 1999), and coeditor, with P. Kokotovic, of the book *Singular Perturbation in Systems and Control* (IEEE Press, 1986). He was the recipient of the 1983 Michigan State University Teacher Scholar Award, the 1989 George S. Axelby Outstanding Paper Award of the *IEEE Transactions on Automatic Control*, the 1994 Michigan State University Withrow Distinguished Scholar Award, and the 1995 Michigan State University Distinguished Faculty Award. He is an IEEE Fellow since 1989. Dr. Khalil served as Associate Editor of *IEEE Transactions on Automatic Control*, 1984-1985; Registration Chairman of the IEEE-CSC Conference, 1984; Finance Chairman of the 1987 American



Control Conference (ACC); Program Chairman of the 1988 ACC; General Chair of the 1994 ACC; Associate Editor of *Automatica*, 1992-1999, and Action Editor of *Neural Networks*, 1998-1999. He is currently serving as Editor of *Automatica* for nonlinear systems and control, and member of the IEEE-CSS Board of Governors.

*The **Control Engineering Practice Award** is given to one individual or one for significant contribution to the advancement of control practice. The primary criterion for selection will be for the application and implementation of innovative control concepts, methodology, and technology, for the planning, design, manufacture, and operation of control systems*

Francis G. (Greg) Shinskey has worked in the process control industry since 1954, when he joined the Dupont Savannah River Plant after his naval service as a process engineer. After several years of experience at Dupont and then Olin Chemical, and a change to a position as an instrument engineer, he joined The Foxboro Company in 1960, where he was the Chief Application Engineer and a Bristol Fellow at the time of his retirement in 1993. With Foxboro, Greg designed and commissioned advanced control systems for customers in power plants (nuclear, fossil-fueled and geothermal), food processing, pharmaceuticals, metal finishing, aerospace, water and wastewater, mining, pulp and paper, chemicals and plastics, and petroleum industries. He developed novel controls for many unit operations, including distillation, evaporators, dryers, chemical reactors, boilers, heat transfer, pumps and compressors, and pH neutralization. He also trained colleagues and customers in advanced control, giving seminars in over 40 countries around the world, and at many locations in Australia, the U.K., the U.S. and Canada. Since his retirement from Foxboro, Greg continues to provide the seminars



and consulting services to the same customer base. Current clients include the Massachusetts Water Resources Authority, NortheastUtilities, Niagara Mohawk Power Company, ExperTune, and The Foxboro Company (Invensys). His awards include the ISA Applications Award (1997), Education Award (1983), Founder's Award (1988) and Fellowship (1990), the AIChE Computing Practice Award (1992), The Institute of Measurement and Control Hartley Award (1995) and the Nordic Process Control Award (1998). He is the author of several books, which have been translated into Russian, Italian, Japanese, Spanish and Chinese among other languages. He is also the holder of 17 U.S. patents on methods and apparatus for simulation, for controlling boilers, distillation columns and dryers, and for high performance controllers. The latest were for a self-tuning PID controller with deadtime compensation.

The O. Hugo Schuck Award is given to recognize the best paper presented at the previous ACC. The paper must have been presented by the awardee or a coauthor.

Two papers have been selected to share this year's O. Hugo Schuck Award:

"Wave suppression by Nonlinear Finite-Dimensional Control"
by Antonios Armaou and Panagiotis Christofides

and

"Disturbance Energy Amplification in Three Dimensional Channel Flows"
by Bassam Bamieh and Mohammed Dahleh

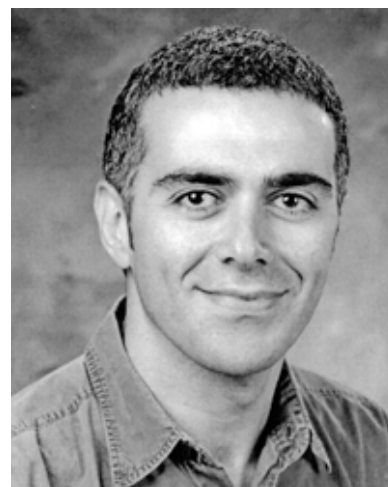
Antonios Armaou was born in Athens Greece, in 1972 He received the Diploma in Chemical Engineering degree from the National Technical University of Athens, Greece, in 1996 and the Ph.D. degree in Chemical Engineering from the University of California at Los Angeles in 2000. His theoretical research interests include nonlinear robust control, and model reduction and control of nonlinear distribute parameter systems, with applications to chemical processes, advanced materials and semiconductor processing, and fluid flows. He has published more than ten articles. Dr. Armaou has received a best presentation session award at the 1999 American Control Conference and has been a finalist for the Best Student Paper Award in the Materials Division Poster Session at the 1998 AIChE Annual Meeting.



Panagiotis D. Christofides was born in Athens, Greece, in 1970. He received the Diploma in Chemical Engineering degree, in 1992, from the University of Patras, Greece, the M.S. degrees in Electrical Engineering and Mathematics, in 1995 and 1996, respectively, and the Ph.D. degree in Chemical Engineering, in 1996, all from the University of Minnesota. Since 1996 he has been an Assistant Professor in the Department of Chemical Engineering at the University of California, Los Angeles. His theoretical research interests include nonlinear, robust and optimal control, singular perturbations, and model reduction, optimization and control of nonlinear distributed parameter systems, with applications to chemical processes, advanced materials and semiconductor processing, particle technology, biotechnology and fluid flows. He has published over 70 articles and one research monograph. Professor Christofides has received the Teaching Award from the AIChE Student Chapter of UCLA in 1997, a Research Initiation Award from the Petroleum Research Fund in 1998, a CAREER award from the National Science Foundation 1998, and the Ted Peterson Student Paper Award from the Computing and Systems Technology Division of AIChE in 1999.



Bassam Bamieh received the PhD degree from Rice University in 1992 in Electrical and Computer Engineering. From 1991-98 he was with the department of Electrical and Computer Engineering and the Coordinated Science Laboratory at the University of Illinois at Urbana-Champaign. Since 1998 he has been with the department of Mechanical and Environmental Engineering at UCSB. His research interests are primarily in the areas of Control and Dynamical Systems, specifically as related to issues of robustness, uncertainty and spatially distributed systems. In the area of fluid dynamics, his research is concerned with the connections



between robustness theory, hydrodynamic stability and turbulence.
<http://www.engineering.ucsb.edu/~bamieh>

Mohammed Dahleh received the B.S.EE. degree from Texas A & M University in 1983, and the M.A. and Ph.D. degrees from Princeton University, in 1986 and 1987, respectively. From 1987 to 1990, he was with the Department of Electrical Engineering at Texas A & M University. Since January 1991, he has been with the Mechanical Engineering Department at the University of California-Santa Barbara as an Assistant Professor (1991-1993), Associate Professor (1993-1995), and since July, 1995 as a Professor. He is currently the Research Director of the Center for Control Engineering and Computation. Mohammed Dahleh's research interests are in robust control, atomic force microscopy, control of fluid flow, and applications of control to micro-electro-mechanical systems. He served as the chairman of the Systems Theory Panel of the Dynamic Systems and Control Division of ASME, and as an associate editor for the journals: Systems and Control Letters, IEEE Transactions on Automatic Control, and the ASME Journal on Dynamic Systems Measurement and Control. He received the Academic Senate Distinguished Teaching Award in Engineering in 1994, the Outstanding Faculty Teacher Award in 1992. He is a member of ASME, IEEE, and SIAM. In 1999 he was elected fellow of IEEE.

