

---

## Plenary Sessions

### **Plenary Lecture 1.**

*Dr. Michael Masten, Texas Instruments Incorporated*  
*Recent and Projected Trends in Control Applications*

**Monday, September 25**

8:00 am – 9:00 am

*Aleutian Room*

**Abstract** – Control “theory” has produced many significant advancements, and a serious debate would no doubt occur if we tried to identify the specific theories that have had the most impact on our field. At the same time, the impact of control “applications” has been just as dramatic! We could likewise debate which applications have been the most significant; which ones solved the most pressing technical and social challenges, which ones generated the most financial return for those who developed them, which ones started entire new industries, and which ones brought the most recognition to our field. Although we might not agree on the relative importance of specific applications, we can nevertheless identify several recent trends that have enabled our most significant applications: control performance/precision/accuracy has dramatically improved, costs (both developmental and operational) have declined by orders of magnitude, reliability has improved, energy consumption has been reduced, system size and weight has dwindled, and the “impossible” has in fact become doable. Several fundamental developments fostered these control advancements: new/improved sensors, more effective actuators, digital/computer implementation, merging of mechanical and electronic solutions, as well as improved control design and fabrication techniques. These same factors will no doubt facilitate even greater advancements as we further accelerate control application trends.

**Biography** – Michael K. Masten is a TI Fellow in Corporate Research and Development at Texas Instruments Incorporated. During his career at TI, Mike has worked on line-of-sight stabilization, target tracking, inertial navigation, missile autopilot-flight control systems, real-time hardware-in-the-loop test processes, electric motor control, and hard disk drive systems. He holds five patents, has published over 50 articles, and has taught numerous workshops regarding stabilization-tracking systems. Dr. Masten is currently manager of a research program directed to practical implementation of control systems using state of the art electronics. He was elected Senior Member of Technical Staff on TI's technical ladder in 1980, and promoted to rank of Texas Instruments Fellow in 1989.

Dr. Masten received electrical engineering degrees from the University of Texas in Austin as well as a MBA from the University of Dallas. He served two terms as member of the IEEE Control Systems Society Board of Governors and VP Member Activities (1992-1993), VP Financial Affairs (1994), President-Elect (1995), and Society President in 1996. Mike was General Chair for the 1994 IEEE Conference on Decision and Control. He is a member of the Council, as well as Vice Chair of the Technical Board, for the International Federation of Automatic Control; he also serves on the Editorial Board for the IFAC journal, “Control Engineering Practice.”

Dr. Masten was elected as member of the IEEE Board of Directors for 1997-98, and he is currently Chair of the Finance Committee for the IEEE Technical Activities Board. He was elected an IEEE Fellow in 1990.



## **Plenary Lecture 2.**

*Professor Keith Glover, University of Cambridge, UK*  
*Control System Design: Matching Methods to Problems*

**Tuesday, September 26**

*8:00 am – 9:00 am*  
*Aleutian Room*

**Abstract** – The essence of applicable control theory is to formulate problems that are both analytically and computationally tractable and also address issues of practical importance. Applications driven theory then needs to identify the essential features of a problem area that characterize its potential performance (e.g. dynamic behavior, system uncertainty, input saturation, disturbance properties, nonlinearities, etc.). In addition, the availability or ease of development of generic or bespoke software needs to be considered.

This talk will consider the above issues with reference to our experience in both developing and applying robust control techniques in a variety of applications including flight control and automotive engine management systems.

**Biography** – Keith Glover received the B.Sc. (Eng) degree from Imperial College, London in 1967, and the S.M., E.E. and Ph.D. degrees from the Massachusetts Institute of Technology, Cambridge, MA, USA in 1971, 1971 and 1973, respectively, all in electrical engineering.

From 1967 to 1969 he was a development engineer with the Line Communications Division of the Marconi Company, Chelmsford, England. From 1973 to 1976, he was on the faculty of the Department of Electrical Engineering, University of Southern California, Los Angeles. Since 1976 he has been with the Department of Engineering, University of Cambridge, U.K., where his present position is Professor of Engineering, Head of the Information Engineering Division and Deputy Head of Department (Research). His current research interests include robust control, model approximation, and applications in aerospace and automotive industries.

Professor Glover was a Kennedy Fellow at MIT from 1969-1971, a Visiting Fellow at the Australian National University, Canberra, in 1983-1984 and a JSPS Fellow visiting Japan in 1991. He was a co-recipient of the AACC O. Hugo Schuck Award for best paper at the 1983 ACC; of the George S. Axelby Outstanding Paper Award for 1990 and of the IEEE W.G.R. Baker Prize Award for 1991. He is a Fellow of the IEEE and a Fellow of the Royal Society.

