

## PROMOTION RECOMMENDATION

University of Michigan  
College of Engineering

Anna G. Stefanopoulou, associate professor of mechanical engineering, with tenure, Department of Mechanical Engineering, College of Engineering, is recommended for promotion to professor of mechanical engineering, with tenure, Department of Mechanical Engineering, College of Engineering.

### Academic Degrees

Diploma	1991	National Technical University of Athens, Naval Architecture and Marine Engineering
M.S.	1992	University of Michigan, Naval Architecture and Marine Engineering
M.S.	1994	University of Michigan, Electrical Engineering and Computer Science
Ph.D.	1996	University of Michigan, Electrical Engineering and Computer Science

### Professional Record

2000-present	Associate Professor of Mechanical Engineering, University of Michigan
1998-2000	Assistant Professor, Step III of Mechanical & Environmental Engineering, University of California, Santa Barbara
1999-2000	Assistant Professor, Step III of Electrical and Computer Engineering, University of California, Santa Barbara
1998	Assistant Professor, Step II of Mechanical and Environmental Engineering, University of California, Santa Barbara
1996-1997	Acting Assistant Professor, Step II of Mechanical and Environmental Engineering, University of California, Santa Barbara
1995-1997	Technical Research Specialist, Ford Motor Company

### Summary of Evaluation:

Teaching: The casebook, including the letters received from students, clearly shows that Professor Stefanopoulou is a dedicated, talented and appreciated teacher and mentor to her students. She has made special efforts in outreach (e.g., fuel cell toy bus, “unstable bicycle”), and to mentor minority students in undergraduate research projects. Her popular new course, ME 569: Powertrain Controls, has also been taught to several companies as a short course. She has graduated six doctoral students to date, all of whom found excellent positions, many of them in academia. Her student course evaluations are consistently at a very high level.

Research: The casebook presents a well-rounded research portfolio of a well-published, established and outstanding professor. Professor Stefanopoulou’s research is characterized by its solid foundations in basic science and engineering systems, its motivation to achieve significant engineering breakthroughs, its involvement of students in all phases of the research, and its collaborative features with other faculty and with industry. Professor Stefanopoulou has established successful research programs in several areas related to dynamics and control of automotive powertrain systems, fuel cell systems, and fuel processing systems. Her research is characterized by detailed attention to modeling, dynamics, control design and analysis, system level experimentation on prototypes, and industrial interaction and technology transfer. External evaluators unanimously laud the quality, impact and relevance of her research work.

Recent and Significant Publications:

- Control of Fuel Cell Power Systems: Principles, Modeling, Analysis, and Feedback Design*, by Jay T. Pukrushpan, Anna G. Stefanopoulou, and Huei Peng. Springer Verlag, London, UK, ISBN 1-85233-816-4, September 2004.
- “Nonlinear Control for Magnetic Levitation of Automotive Engine Valves,” K.S. Peterson, J.W. Grizzle, A.G. Stefanopoulou, *IEEE Transactions on Control Systems Technology*, accepted.
- “Adaptive Air Charge Estimation for Turbocharged Diesel Engines”. O. Storset, A. Stefanopoulou, R. Smith, *ASME Journal of Dynamic Systems Measurements and Control*, 126:3, pp.633-643, September 2004.
- “Extremum Seeking Control for Soft Landing of an Electromechanical Valve Actuator,” K.S. Peterson, A.G. Stefanopoulou, International Federation of Automatic Control, *Automatica*, 40:6, pp. 1063-1069, June 2004.
- “Control-Oriented Modeling and Analysis for Automotive Fuel Cell System,” Jay T. Pukrushpan, Huei Peng, and Anna G. Stefanopoulou, *ASME Journal of Dynamic Systems, Measurement, and Control*, 126:1, pp. 14-25, March 2004.
- “Control of Fuel Cell Breathing,” J.T. Pukrushpan, A.G. Stefanopoulou, H. Peng, *IEEE Control Systems Magazine*, 24:2, pp.30-46, April 2004.
- “Pressure and Temperature based Adaptive Observer of Air Charge for Turbocharged Diesel Engines”, Anna Stefanopoulou, Ove Storset, Roy Smith, *International Journal of Robust and Nonlinear Control*, 14:6, pp. 543-560, April 2004.
- “Adaptive Continuously Variable Compression Braking Control for Heavy-Duty Vehicles,” Maria Druzhinina, Anna Stefanopoulou, Lasse Moklegaard, *ASME Journal of Dynamic Systems, Measurement, and Control*, 124:3, Sept. 2002.
- “Variable Camshaft Timing Engine Control”, A.G. Stefanopoulou, J.S. Freudenberg, and J.W. Grizzle, *IEEE Transactions on Control System Technology*, 8:2, pp. 23-34, Jan. 2000.
- “Control-Oriented Model of a Dual Equal Variable Cam Timing Spark Ignition Engine”, A.G. Stefanopoulou, J.A. Cook, J.S. Freudenberg, and J.W. Grizzle, *ASME Journal of Dynamic Systems, Measurement, and Control*, Vol. 120, pp. 257-266, 1998.

Service: The casebook documents the fact that Professor Stefanopoulou is recognized nationally and internationally as a leader, both intellectually and in terms of professional service, in the rapidly growing area of automotive control systems, and in the emerging area of fuel cell control. This recognition includes several best paper awards, an NSF CAREER Award, an ASME Dynamic Systems and Control Division Outstanding Young Investigator Award, an SAE Teetor Education Award, and the UM Henry Russel Award. She has been elected to the Board of Governors of the IEEE Control Systems Society, and is an Associate Editor of the *IEEE Transactions on Control Systems Technology*, and of the *International Journal of Vehicle Autonomous Systems*.

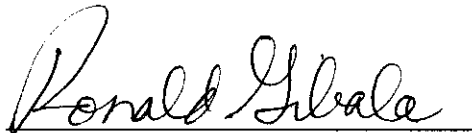
External Reviewers:

Reviewer (A): “Her work on engine braking for automated control of heavy trucks is very highly regarded by PATH and the California Department of Transportation” “Anna is best known for her work in advanced power train control systems. She has published excellent archival papers in this area both while she was at Ford and continuing on at Santa Barbara and now at Michigan. She has also made significant contributions to the modeling of propulsion systems and to the control of advanced concept automotive engines such as variable valve timing engines, HCCI engines and more recently in the fuel cell area...I have taught at [University A] and at [University B] and I am very confident that she would be promoted to Full Professor at both places.”

Reviewer (B): “Anna’s research activities are at the leading edge of automotive control systems area. She has formulated and provided solutions to new control problems from the automotive community especially those problems requiring engine optimization and automation for emission reduction. She has established a very strong and visible research program with strong links to industry and with connections and collaboration with local, state, national and international research programs.” “...Anna is a star in academia. I do not know anyone in her [cohort] that can come close to matching her capabilities and accomplishments.”

Reviewer (C): “Professor Stefanopoulou has made significant research contributions in the area of automotive control systems, in particular, on the internal combustion (IC) engine and fuel cells. She applies modern system dynamics and control methodologies to modeling, design and analysis of these systems. In recent years, she has worked on modeling and control fuel cells.”

Summary of Recommendation: Professor Stefanopoulou’s record of professional accomplishment in teaching, research and professional service are outstanding. It is with the support of the College of Engineering Executive Committee that I recommend her for promotion to professor of mechanical engineering, with tenure, Department of Mechanical Engineering, College of Engineering.



Ronald Gibala  
Interim Dean, College of Engineering

May 2006