

Anna G. Stefanopoulou

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Education:

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

Employment:

9/06-present Professor of Mechanical Engineering Department, University of Michigan, Ann Arbor
 9/00-8/06 Associate Professor of Mechanical Engineering Department, University of Michigan, Ann Arbor
 1/98-6/00 Assistant Professor of Mechanical and Environmental Eng, Univ of California, Santa Barbara
 12/95-12/97 Technical Specialist, Ford Research Laboratory, Ford Motor Company, Dearborn.

Honors and awards (external)

2009 ASME 2009 Gustus L. Larson Memorial Award
 2008 IEEE Fellow
 2007 ASME Fellow
 2005 Outstanding Young Investigator by the ASME International Dynamic Systems and Control Division (DSCD).
 2002 MIT's Technology Review Young Innovator (one of the world's 100 top young innovators)
 2002 SAE Teetor Educational Award
 2001 Invitee of the Alexander von Humboldt Foundation (AvH) 4th German-American
 1999 Invitee of the National Academy of Engineering Symposium on Frontiers of Engineering
 1998, 1999, 2000, 2001 Ford Innovation Award Awards (based on Patents issued each year)
 1997 NSF Faculty Early Career Development Award

Honors and awards (internal)

2008 University of Michigan Faculty Recognition Award
 2005 Henry Russel Award, The University of Michigan
 2005 Outstanding Faculty Achievement Award in Mechanical Engineering Dept, University of Michigan

Best paper Awards:

2006 Best Paper in Advanced Vehicle Propulsion" co-authored by Ph.D. advisee Chia Jui Chiang, in the 8th International Symposium on Advanced Vehicle Control (AVEC06), August 20-24, 2006, Taipei, Taiwan.
 2004 Best Paper Award co-authored by Ph.D. advisee Katherine Peterson, International Federation of Automatic Control, Symposium on Mechatronic Systems, Sydney, AU
 2003 Best Paper Award IEEE Transaction Control System Technology for years 2001-2002

Keynote or Plenary Talks

- 2007 Opening Lecture in European Union review: Fuel Cell Technologies for Marine Applications (MC-WAP)
- 2007 Keynote Lecture, CSCHE2007 57th Canadian Chemical Engineering Conference, Oct 2007, Edmonton, Alberta, Canada.
- 2006 Plenary Talk, the IEEE Vehicle Power and Propulsion Conference Sept 2006, Windsor, UK, England.
- 2006 Keynote Lecture, Les Rencontres Scientifiques de l'IFP: "New Trends on Engine Control, Simulation and Modelling" Oct 2006, IFP/Rueil-Malmaison, France
- 2005 Keynote Lecture, the ASME 3rd International Conference on Fuel Cell Science, Engineering and Technology, May 2005, Ypsilanti, US
- 2004 Plenary Talk, International Federation of Automatic Control, Symposium on Mechatronic Systems, Sept 04, Sydney, AU

Special Appointments:

- Elected member of the Board of Governors for the IEEE Control Systems Society (CSS) 2006-2009
- Vice-Chair: Industry & Applications, 2008 American Control Conference Organizing Committee.

- Associate Editor, ASME Journal of Dynamic Systems Control and Measurements, 2009-
- Associate Editor, IEEE Transactions in Control Systems Technology, 2002-present
- Associate Editor, International Journal of Vehicle Autonomous Systems, 2003-2007
- Member, ASME Dynamic Systems and Control division Honors and Awards committee, 2007-present
- Member, American Automatic Control Council (AACC) Ragazzini Educational Award committee 2007
- Member, IEEE Control Systems Society Technology Award selection committee, 2005-present
- Member, American Control Conference selection committee for best student paper award, 2004
- Chair, Transportation Panel, ASME Dynamic Systems and Control Division, 1999-2002.
- Vice-Chair, Transportation Panel, ASME Dynamic Systems and Control Division, 1997-1999.
- Member, Technical Advisory Committee (Editorial Board), IFAC Automotive Control Division 2000-present
- Member, Technical Program Committee (Editorial Board), 2000, 2002 American Control Conference.

Articles:

1. "Incremental Step Reference Governor for Load Conditioning of Hybrid Fuel Cell and Gas Turbine Power Plants," V. Tsourapas, J. Sun, A.G. Stefanopoulou, IEEE Transactions Control System Technology, Vol. 17, Issue 4, July 2009 Page(s):756 - 767
2. "Correlating Nitrogen Accumulation with Temporal Fuel Cell Performance," E. A. Muller, F. Kolb, L. Guzzella, A. G. Stefanopoulou, D. A. McKay to appear in ASME J Fuel Cell Science and Technology.
3. "A Dynamic Semi-Analytic Channel-to-Channel Model of Two-Phase Water Distribution for Estimation and Control of Fuel Cells," B.A. McCain, A.G. Stefanopoulou and I.V. Kolmanovsky, in IEEE Transactions Control System Technology, vol 17, number 5, pp 1043-1055.
4. "Humidity and pressure regulation in a PEM fuel cell using a gain-scheduled static feedback controller," Karnik, A.Y.; Sun, J.; Stefanopoulou, A.G.; Buckland, IEEE Transactions on Control Systems Technology, (17)2, p 283-97, March 2009
5. "Sensitivity analysis of combustion timing of homogeneous charge compression ignition gasoline engines," Chia-Jui Chiang, Stefanopoulou, Journal of Dynamic Systems, Measurement and Control, (131)1, Jan. 2009
6. "Measurement of Liquid Water Accumulation in a PEMFC with Dead-Ended Anode," J. B. Siegel, D. A. McKay, A. G. Stefanopoulou, D. S. Hussey, and D. L. Jacobson, J. Electrochemical Society, (155)11 pp. B1168 (2008).
7. B. A. McCain, A. G. Stefanopoulou, and I. V. Kolmanovsky, "On the dynamics and control of through-plane water distributions in PEM fuel cells," Chemical Engineering Science, vol. 63, no. 17, pp. 4418–4432, Sep. 2008.
8. "Model based detection of hydrogen leaks in a fuel cell stack," Ari Ingimundarson, Anna G. Stefanopoulou and Denise A. McKay, IEEE Transactions Control System Technology, 16(5):1004-1012, Sept. 2008.
9. "Control Oriented Analysis of a Hybrid Solid Oxide Fuel Cell and Gas Turbine (SOFC/GT) System," V. Tsourapas, J. Sun, A. G. Stefanopoulou, to appear in ASME Journal on Fuel Cell Science and Technology.
10. "Parameterization and Prediction of Temporal Fuel Cell Voltage Behavior During Flooding and Drying Conditions," Denise A. McKay, Jason B. Siegel, William Ott, and Anna G. Stefanopoulou, Journal of Power Sources, Vol 178/1 pp 207-222, 2008.
11. "Optimum Battery Size for Fuel Cell Hybrid Electric Vehicle, Part I," Olle Sundstroem, Anna G. Stefanopoulou, ASME Journal of Fuel Cell Science and Technology, vol 4, pp 167-175, May 2007.
12. "Optimum Battery Size for Fuel Cell Hybrid Electric Vehicle with Transient Loading Consideration, Part II," Olle Sundstroem, Anna G. Stefanopoulou, ASME Journal of Fuel Cell Science and Technology, vol 4, pp 176-184, May 2007.
13. "Nonlinear Control of Transitions Between Thermal Equilibria in Homogeneous Charge Compression Ignition (HCCI) Engines," C. J. Chiang, Anna G. Stefanopoulou, Mrdjan Jankovi'c, IEEE Transactions Control System Technology, special issue on Automotive Control, 15 (3): 438-448 May 2007.
14. "Performance Limitations of Air Flow Control in Power Autonomous Fuel Cell System," K.-Y. Suh, A. G. Stefanopoulou, IEEE Transactions Control System Technology, special issue on Automotive Control, 15 (3): 465-473 May 2007.
15. "Mechatronics in Fuel Cell Systems," A. G. Stefanopoulou, K.-W. Suh, IFAC Control Engineering Practice, Volume 15, Issue 3, March 2007, Pages 277-289
16. "Optimal Power Control of Hybrid PEM Fuel Cell Systems for an Accelerated System Warm-up," E. A. Muller, A. G. Stefanopoulou, L. Guzzella, IEEE Transactions Control System Technology, Volume 15, Issue 2, March 2007, Page(s):290 – 305.

17. "Stability Analysis in Homogeneous Charge Compression Ignition (HCCI) Engines with High Dilution," C.-J. Chiang, A. G. Stefanopoulou, , IEEE Transactions Control System Technology, Volume 15, Issue 2, March 2007 Page(s):209 - 219
18. "Model Based Control of an Integrated Fuel Cell and Fuel Processor with Exhaust Heat Recirculation" V. Tsourapas, A. Stefanopoulou, J. Sun, IEEE Transactions on Control Systems Technology, Volume 15, Issue 2, March 2007 Page(s):233 - 245
19. "Water equilibria and management using a two-volume model of a polymer electrolyte fuel cell," Amey Y. Karnik, Anna G. Stefanopoulou and Jing Sun, Journal of Power Sources, Volume 164, Issue 2, 10 February 2007, Pages 590-605.
20. "Constraint Handling in a Fuel Cell System: A Fast Reference Governor Approach" A. Vahidi, I. Kolmanovsky, A. Stefanopoulou, IEEE Transactions Control System Technology, Volume 15, Issue 1, Jan. 2007 Page(s):86 - 98
21. "Adaptive Model Predictive Control for Coordination of Compression and Friction Brakes in Heavy Duty Vehicles" A. Vahidi, A. Stefanopoulou, H. Peng, International Journal of Adaptive Control and Signal Processing, Volume 20, Issue 10, Pages: 581-598, Dec. 2006
22. "Current Management in a Hybrid Fuel Cell Power System: A Model Predictive Control Approach," A. Vahidi, A. G. Stefanopoulou, H. Peng, IEEE Transactions Control System Technology, Volume 14, Issue 6, Nov. 2006 Page(s):1047 - 1057
23. "Nonlinear Control for Magnetic Levitation of Automotive Engine Valves," K. S. Peterson, J. W. Grizzle, A. G. Stefanopoulou, IEEE Transactions on Control Systems Technology, Vol.14, Issue 2, March 2006 p:346 - 354.
24. "Analysis, Modeling, and Validation for the Thermal Dynamics of a Polymer Electrolyte Membrane Fuel Cell Sytems," E. A. Muller, A. G. Stefanopoulou, ASME Journal of Fuel Cell Science and Technology, pp. 99-110, Vol. 3, Issue 2, May 2006.
25. "Control-Oriented Model of Fuel Processor for Hydrogen Generation in Fuel Cell Applications," J. Pukrushpan, A. Stefanopoulou, S. Varigonda, J. Eborn, C. Haugstetter, IFAC *Control Engineering Practice*, v 14, n 3 SPEC. ISS., March, 2006, p 277-293
26. "Control and Coordination of Air Compressor and Voltage Converter in Load-Following Fuel Cells," K.-W. Suh, A. G. Stefanopoulou, International Journal of Energy Research, vol 29, issue 29, pp 1167-1189, Sept, 2005.
27. "A Mean-Value Model for Control of Homogeneous Charge Compression Ignition (HCCI) Engines ," D. J. Rausen, A. G. Stefanopoulou, J.-M. Kang, J. A. Eng, T.-W. Kuo, ASME Journal of Dynamic Systems Measurement and Control, v 127, n 3, September, 2005, p 355-362
28. "Control of charge dilution in turbocharged diesel engines via exhaust valve timing," H. Yilmaz, A. G. Stefanopoulou, ASME Journal of Dynamic Systems Measurement and Control, v 127, n 3, September, 2005, p 363-373.
29. "Recursive Least Squares with Forgetting for Online Estimation of Vehicle Mass and Road Grade: Theory and Experiments," A. Vahidi, A. Stefanopoulou, H. Peng, Vehicle System Dynamics, Vol. 43, No. 1, pp. 31-55, Jan. 2005.
30. "Control of Natural Gas Catalytic Partial Oxidation for Hydrogen Generation in Fuel Cell Applications," J.T. Pukrushpan, A.G. Stefanopoulou, S. Varigonda, L.M. Pedersen, S. Ghosh, H. Peng; IEEE Transactions on Control Systems Technology, v 13, n 1, January, 2005, p 3-14
31. "Design under Uncertainty and Assessment of Performance Reliability of a Dual-Use Medium Truck with Hydraulic-Hybrid Powertrain and Fuel Cell Auxiliary Power Unit," M. Kokkolaras, Z. Mourelatos, L. Louca, Z. Filipi, G. Delagrammatikas, A. Stefanopoulou, P. Papalambros, D. Assanis, SAE 2005 Transactions—Journal in Engines, SAE 2005-01-1396.
32. "Adaptive Air Charge Estimation for Turbocharged Diesel Engines", O. Storset, A. Stefanopoulou, R. Smith, ASME Journal of Dynamic Systems Measurements and Control, v 126, n 3, September, 2004, p 633-643.
33. "Speed Control Experiments for Heavy Duty Vehicle with Coordinated Friction and Engine Compression Brakes," M. Druzhinina, A. Stefanopoulou International Journal of Heavy Vehicle Systems, v 11, n 3-4, Advances in Ground Vehicle Simulation, 2004, p 237-256
34. "Extremum Seeking Control for Soft Landing of an Electromechanical Valve Actuator," K. S. Peterson, A. G. Stefanopoulou, International Federation of Automatic Control, Automatica, v 40, n 6, June, 2004, p 1063-1069.

35. "Modeling and Dynamics of a Fuel Cell Combined Heat Power System for Marine Applications," Vasilis Tsourapas, Jing Sun, Anna Stefanopoulou, *IASME Transactions*, 2(1), pp.288-293, April 2004.
36. "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.
37. "Control of Fuel Cell Breathing," J.T. Pukrushpan, A.G. Stefanopoulou, H. Peng, *IEEE Control Systems Magazine*, 24(2) pp30-46, April, 2004
38. "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*, Vol 14, no 6, pp 543-560, April 2004.
39. "Fuel Cell APU for Silent Watch and Mild Electrification of a Medium Tactical Truck", Z. Filipi, L. Louca, A.G. Stefanopoulou, J. Pukrushpan, B. Kittirungsi, and H. Peng, *SAE 2004 Transactions - Journal of Engines*, SAE 2004-01-1477
40. "Iterative Learning Control for Soft Landing of Electromechanical Valve Actuator in Camless Engines," Wolfgang Hoffmann, Kathy Peterson, Anna Stefanopoulou, *IEEE Transactions on Control System Technology* Vol 11, no.2, p. 174-184, March 2003.
41. Modeling and Control of Electromechanical Valve Actuator," Y. Wang, A. Stefanopoulou, K. Peterson, T.Megli, M.Haghgoie, *SAE 2002 Transactions - Journal of Engines*, SAE 2002-01-1106
42. "Effects of Control Structure on Performance for an Automotive Powertrain with Continuously Variable Transmission," Sharon Liu, Anna Stefanopoulou, *IEEE Transactions on Control System Technology*, vol. 10, no. 5, 701-9, Sept. 2002.
43. "Adaptive Continuously Variable Compression Braking Control for Heavy-Duty Vehicles," Maria Druzhinina, Anna Stefanopoulou, Lasse Moklegaard, *ASME Journal of Dynamic Systems, Measurement, and Control* Vol 124, no.3, Sept 2002.
44. "Speed Gradient Approach to Longitudinal Control of Heavy-Duty Vehicles Equipped with Variable Compression Brake", Maria Druzhinina, Anna Stefanopoulou, Lasse Moklegaard, *IEEE Transactions on Control System Technology*, Vol.10, no. 2, p. 209-221, March 2002
45. "Brake Valve Timing and Fuel Injection: a Unified Engine Torque Actuator for Heavy-Duty Vehicles", Lasse Moklegaard, Maria Druzhinina, Anna Stefanopoulou, *Journal of Vehicle System Dynamics*, vol 36, No 2-3, Sept 2001.
46. "Inherent Limitations and Control Design for Camless Engine Idle Speed Dynamics", Yan Wang, Anna Stefanopoulou, Roy Smith, *International Journal of Nonlinear and Robust Control*, vol.11, no.11; Sept. 2001; p.1023-42.
47. "Control Techniques for Assessing Feasibility and Defining Subsystem Level Requirements: An Automotive Case Study", I. Kolmanovsky and A. G. Stefanopoulou, *IEEE Transactions on Control System Technology*, Vol.9, no.3, p.524-34, May 2001.
48. EGR-VGT Control Schemes: Experimental Comparison for a High-Speed Diesel Engine," M. J. van Nieuwstadt, I.V. Kolmanovsky, P.E. Moraal, A. G. Stefanopoulou, M. Jankovic, *IEEE, Control System Magazine*, Vol 20, no. 3, pp 63-79, June 2000.
49. "Maneuverability and Smoke Constraints in Marine Diesel Propulsion", A. G. Stefanopoulou and R. Smith, *IFAC Journal of Control Engineering Practice*, vol.8, no.9; Sept. 2000; p.1023-31.
50. "Control of Variable Geometry Turbocharged Diesel Engines for Reduced Emissions", A. G. Stefanopoulou, I. Kolmanovsky, and J.S. Freudenberg, *IEEE Transactions on Control System Technology*, vol.8, No 4, pp. 733-745, July 2000.
51. "Control-Oriented Model for Camless Intake Process (Part I)", M.-S. S. Ashhab, A. G Stefanopoulou, J. A. Cook, M. B. Levin, *ASME Journal of Dynamic Systems, Measurement, and Control*, Vol 122, pp. 122-130, March 2000.
52. "Control of Camless Intake Process (Part II)", M.-S. S. Ashhab, A. G. Stefanopoulou, J. A. Cook, M. B. Levin, *ASME Journal of Dynamic Systems, Measurement, and Control*, Vol 122, pp. 131-139, March 2000.
53. "Variable Camshaft Timing Engine Control", A. G. Stefanopoulou, J. S. Freudenberg, and J. W. Grizzle, *IEEE Transactions on Control System Technology*, Vol.8, No.2, Jan.2000, pp.23-34.
54. "Joint Air-Fuel Ratio and Torque Regulation using Secondary Cylinder Air Flow Actuators", A. G. Stefanopoulou, J. A. Cook, J. W. Grizzle, and J. S.Freudenberg, *ASME Journal of Dynamic Systems, Measurement, and Control*, Vol.121, No.4, Dec. 1999, pp.638-647.

55. "Analysis and Control of Transient Torque Response in Engines with Internal Exhaust Gas Recirculation", A.G. Stefanopoulou and I. Kolmanovsky, IEEE Transactions on Control System Technology, Vol.7, No.5, Sep.1999, pp.555-566.
56. "Camless Engine Control for Robust Unthrottled Operation", M. S. Ashhab, A. G. Stefanopoulou, J. A. Cook, and M. Levin, SAE 1998 Transactions, Journal of Engines, Vol. 107.
57. "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.
58. "Torque Management of Engines with Variable Cam Timing", M. Jankovic, F. Frischmuth, A. G. Stefanopoulou, and J. A. Cook, IEEE Control Systems Magazine, vol.18, pp.34-42, Oct.1998.

Books:

1. "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, Sept 2004

Chapters in books:

1. "Control of Electromechanical Actuators: Valves Tapping in Rhythm", Kathy Peterson, Yan Wang, Anna Stefanopoulou, in Multidisciplinary Research in Control: The Mohammed Dahleh Symposium 2002. Eds. L. Giarre' and B. Bamieh, Lecture Notes in Control and Information Sciences N. 289, Springer-Verlag, Berlin, 2003, ISBN 3-540-00917-5
2. "Issues in Modelling and Control of Intake Flow in Variable Geometry Turbocharged Engines", I. V. Kolmanovsky, P.E. Moraal, and M. van Nieustandt, and A. G. Stefanopoulou, *Systems Modeling and Optimization*, pp. 436-445, Ed. M. Polis, Chapman Hall/CRC Research Notes in Mathematics, 1999.

US and International Patents awarded

1. US 6,681,728 Method for controlling an electromechanical actuator for Fuel Air Charge Valve, K.S. Peterson, A.G. Stefanopoulou, T. Megli, Y Wang, M. Haghgooe, Jan 2004
2. US 6,579,206 "Coordinated control for a powertrain with a continuously variable transmission," Sharon Liu, Anna Stefanopoulou, June 2003
3. US 6,568,173 B1 "Control method for turbocharged diesel engine aftertreatment system", Ilya Kolmanovsky, Anna Stefanopoulou, June 2003
4. U.S. 6,186,124 "System and Method For Controlling Camshaft Timing, Air/Fuel Ratio, and Throttle Position in an Automotive Internal Combustion Engine", A.G. Stefanopoulou and M. Jankovic. This application is a divisional of Ser. No. 09/005,571, now U.S. Pat. No. 6,006,725, Feb 2001.
5. U.S. 6,076,353 "A Method for Coordination and Calibration of Variable Geometry Turbocharger and Exhaust Gas Recirculation in Diesel Engines", J. S. Freudenberg, I. V. Kolmanovsky, A. G. Stefanopoulou, Jan 1999.
6. U.S. 6,006,725 "System and Method For Controlling Camshaft Timing, Air/Fuel Ratio, and Throttle Position in an Automotive Internal Combustion Engine", M. Jankovic, A.G. Stefanopoulou, Jan 1998.
7. U.S. 5,787,848 "A Method of System for Operating An Internal Combustion Engine Having Variable Valve Timing", A. G. Stefanopoulou, I. V. Kolmanovsky, Dec 1997.
8. U.S. 5,755,202 "A Method for Reducing Feedgas Emissions", A. G. Stefanopoulou, K.R. Butts, Oct 1996.

Conference papers (peer-reviewed 6 pages or more)

(2009)

1. "Ethanol detection in flex-fuel direct injection engines using in-cylinder pressure measurements," Nestor Oliverio, Anna Stefanopoulou, Li Jiang and Hakan Yilmaz, SAE 2009-01-0657.
2. "Comparison of Reduced Order Lithium-Ion Battery Models for Automotive Applications," C. Speltino, D. Di Domenico, G. Fiengo and A. Stefanopoulou, submission to 2009 Conference on Decision and Control.
3. "Experimental Validation of a Lithium-Ion Battery State of Charge Estimation with an Extended Kalman Filter: Part I," Carmelo Speltino, Domenico Di Domenico, Giovanni Fiengo, Anna G. Stefanopoulou, The European Control Conference 2009
4. "On the Experimental Identification of an Electrochemical Model of a Lithium-Ion Battery: Part II," Carmelo Speltino, Domenico Di Domenico, Giovanni Fiengo, Anna G. Stefanopoulou, the European Control Conference 2009
5. ...

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6. "Modeling and Validation of Fuel Cell Water Dynamics using Neutron Imaging," Jason B. Siegel, Denise A. McKay, and Anna G. Stefanopoulou, 2008 Proc. of American Control Conference, June 2008.
7. "Stack-level Validation of a Semi-Analytic Channel-to-Channel Fuel Cell Model for Two-Phase Water Distribution Boundary Value Control," B.A. McCain and J.B. Siegel and A.G. Stefanopoulou, 2008 Proc. of American Control Conference, June 2008.
8. "Model and experimental validation of a controllable membrane-type humidifier for fuel cell application," McKay, D.A. Stefanopoulou, A.G. Cook, J., American Control Conference, 2008, June 2008, pp.312-317
9. "SOC Estimation using an EKF based on an Average Electrochemical Model of a Lithium-Ion Battery," Domenico Di Domenico, Anna Stefanopoulou and Giovanni Fiengo, in Proceedings of 2008 IEEE Multi-conference on Systems and Control, Sept 2008.
10. "A Membrane-Type Humidifier for Fuel Cell Applications: Controller Design, Analysis, and Implementation," Denise McKay, Anna Stefanopoulou, Jeffrey Cook, ASME Conference Fuel Cell Science and Technology, FuelCell2008-65257
11. "Measurement of Liquid Water Accumulation in a Proton Exchange Membrane Fuel Cell with Dead-Ended Anode," Jason B. Siegel, Denise McKay, Anna Stefanopoulou, ASME Conference Fuel Cell Science and Technology FuelCell2008-65053.
12. "Correlating Nitrogen Accumulation with Temporal Fuel Cell Performance," Mueller, Eric A., Kolb, Florian, Stefanopoulou, Anna G., McKay, Denise A., Guzzella, Lino, Proc. of 2008 Dynamic Systems and Control Conference (DSCC08), Paper TuAT5.1
13. "On Controllability and Observability of Linearized Liquid Water Distributions Inside a PEM Fuel Cell," McCain, Buz, Anna G. Stefanopoulou, Butts, Ken, Proc. of 2008 Dynamic Systems and Control Conference (DSCC08), Paper TuAT5.2
14. "Estimation of Ethanol Content in Flex-Fuel Vehicles Using an Exhaust Gas Oxygen Sensor: Model, Tuning and Sensitivity," Ahn, Kyung-ho, Stefanopoulou, Anna G., Jankovic, Mrdjan, Proc. of 2008 Dynamic Systems and Control Conference (DSCC08), Paper TuAT5.3

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15. "Dynamics of Homogeneous Charge Compression Ignition (HCCI) Engines with High Dilution" C. J. Chiang and A. G. Stefanopoulou, ACC 2007
16. "Control Oriented Analysis of a Hybrid Solid Oxide Fuel Cell and Gas Turbine (SOFC/GT) System," V. Tsourapas, J. Sun, A. G. Stefanopoulou, FC-07-1086, ASME Conference on Fuel Cell Science and Technology, June 2007
17. "A Multi-Component Spatially-Distributed Model of Two-Phase Flow for Estimation and Control of Fuel Cell Water Dynamics," B.A. McCain and A.G. Stefanopoulou and I.V. Kolmanovsky, Proc 2007 Conference in Control and Decision (CDC) Dec 07.

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18. "Parameterization of Fuel Cell Stack Voltage: Issues on Sensitivity, Cell-to-Cell variation, and Transient response", A. Schilter, D. A. McKay, A. G. Stefanopoulou, Proceedings of FUELCELL 2006, 4th International Conference on Fuel Cell Science, Engineering, and Technology, FUELCELL2006-97177, June 2006, Irvine, CA.
19. "Effects of Control Strategy and Calibration on Hybridization Level and Fuel Economy in Fuel Cell Hybrid Electric Vehicle" K.-W. Suh and A. G. Stefanopoulou, SAE 2006-01-0038
20. "Inherent Performance Limitations of Power-Autonomous Fuel Cell System," Kyung-Won Suh and Anna G. Stefanopoulou, in Proceedings American Control Conference, WeAxx.x, p x-x, June 2006
21. "Sensitivity Analysis of Combustion Timing and Duration of Homogeneous Charge Compression Ignition (HCCI) Engines," C. J. Chiang and A. G. Stefanopoulou, ACC 06
22. "Nonlinear Control of Transitions Between Thermal Equilibria in Homogeneous Charge Compression Ignition (HCCI) Engines," Chia-Jui Chiang, Anna G. Stefanopoulou, Mrdjan Janković, AVEC 06
23. "Optimal Power Split in Fuel Cell Hybrid Electric Vehicle with different Battery Sizes, Drive Cycles, and Objectives," Olle Sundström and Anna Stefanopoulou, CCA 2006
24. "A Study Toward Minimum Spatial Discretization of a Fuel Cell Dynamics Model," Buz A. McCain, Anna G. Stefanopoulou, Ken R. Butts, IMECE2006-14509
25. "Order Reduction for a Control-Oriented of the Water Dynamics in Fuel Cells," Buz A. McCain, Anna G. Stefanopoulou, ASME FUELCELL2006-97075

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26. "Model based detection of hydrogen leaks in a fuel cell stack," A. Ingimundarson, A. G. Stefanopoulou, D. McKay, Proceedings of the 44th IEEE Conference on Decision and Control, 1017 – 1022, Dec. 2005.
27. Current Versus Flux in the Control Design of Electromechanical Valve Actuators K. S. Peterson, A. G. Stefanopoulou, J. S. Freudenberg, in Proceedings American Control Conference, FrC14.3 , p 5021-5026, June 2005
28. "Constraint Management in Fuel Cells: A Fast Reference Governor Approach," A. Vahidi, I. V. Kolmanovsky, A. G. Stefanopoulou, in Proceedings American Control Conference, FrA14.4 , p 3865-3870, June 2005
29. "Dynamics, Optimization and Control of a Fuel Cell Based Combined Heat Power (CHP) System for Shipboard Applications" V. Tsourapas, A. G. Stefanopoulou, J. Sun, in Proceedings American Control Conference, ThA08.1, June 2005
30. "Control of Thermal Ignition in Gasoline Engines," C.-J. Chiang, A.G. Stefanopoulou, in Proceedings American Control Conference, FrA14.1, p 3847-3852, June 2005
31. "Coordination of Converter and Fuel Cell Controllers," Kyung-Won Suh and Anna G. Stefanopoulou, in Proceedings of 13th Mediterranean Conference on Control and Automation (MED'05), p 563-568, June 2005
32. "Analysis, Modeling, and Validation for the Thermal Dynamics of a Polymer Electrolyte Membrane Fuel Cell Systems," E. A. Muller, A. G. Stefanopoulou, Proceedings of the ASME 3rd International Conference on Fuel Cell Science, Engineering and Technology, FUELCELL2005-74050, p 389-404, May 2005
33. "Design under Uncertainty and Assessment of Performance Reliability of a Dual-Use Medium Truck with Hydraulic-Hybrid Powertrain and Fuel Cell Auxiliary Power Unit," M. Kokkolaras, Z. Mourelatos, L. Louca, Z. Filipi, G. Delagrammatikas, A. Stefanopoulou, P. Papalambros, D. Assanis, SAE 2005 World Congress, SAE technical paper series 2005-01-1396, Feb 2005.
34. "Modeling, Parameter Identification, and Validation of Water Dynamics for a Fuel Cell Stack," W. T. Ott, D. A. McKay, A.G. Stefanopoulou, Proceedings of 2005 ASME International Mechanical Engineering Congress & Exposition, Nov 05, IMECE 2005-81484.

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35. "Steady-State Multiplicity and Stability of Thermal Equilibria in Homogeneous Charge Compression Ignition (HCCI) Engines," C. J. Chiang and A. G. Stefanopoulou, in IEEE Proceedings of 2004 Conference in Decision and Control, pp:1676 – 1681, vol.2, Dec 2004.
36. "Nonlinear Magnetic Levitation of Automotive Engine Valves," K.S. Peterson, J.W. Grizzle, A.G. Stefanopoulou, 3rd Symposium on Mechatronic Systems, pp 645-650, 2004 (**best paper award**)
37. "Mechatronics in Fuel Cell Systems," A. G. Stefanopoulou, in Proceedings of International Federation of Automatic Control, 3rd Symposium on Mechatronic Systems, pp 565-576, 2004 (**paper on Plenary talk**)
38. "Modeling and Dynamics of a Fuel Cell Combined Heat Power System for Marine Applications," V. Tsourapas, J. Sun, A. Stefanopoulou, in Proceedings of 1st WSEAS/IASME Int. Conf. on electrosience applications in Naval Engineering and All-electric ship, pp.288-293, April 2004.
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42. "Control-Oriented Model of Fuel Processor for Hydrogen Generation in Fuel Cell Applications," J.T. Pukrushpan, A.G. Stefanopoulou, S. Varigonda, in IFAC Proceedings Symposium in Advances in Automotive Systems, 2004
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 54. "Nonlinear Self-Tuning Control for Soft Landing of an Electromechanical Valve Actuator", K. Peterson, A. Stefanopoulou , IFAC Mechatronics Conference, Nov 2002
 55. "Experimental Results and Implementation Issues of an Iterative Learning Controller for Soft Landing of an Electromechanical Valve Actuator", Kathy Peterson, Wolfgang Hoffmann, Anna Stefanopoulou, 2002 Mediterranean Conference.
 56. "Output Observer Based Feedback for Soft Landing of Electromechanical Camless Valvetrain Actuator," K. Peterson, A. Stefanopoulou, T.Megli, M.Haghgooie, in Proceedings of 2002 American Control Conference, pp. 1413-1418, May 2002
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 58. "Modeling and Control of Electromechanical Valve Actuator," Y. Wang, A. Stefanopoulou, K. Peterson, T.Megli, M.Haghgooie, SAE 2002-01-1106.
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59. "Iterative Learning Control of Electromechanical Camless Valve Actuator," W. Hoffmann, A. Stefanopoulou, Proceedings 2001 American Control Conference, pp.2860-2866, June 2001.
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62. "Modeling of an Electromechanical Valve Actuator for a Camless Engine", Yan Wang, Anna Stefanopoulou, Mohammad Haghgooie, Ilya Kolmanovsky, Mazen Hammoud, Proceedings AVEC 2000, 5th Int'l Symposium on Advanced Vehicle Control, no. 93, Aug 2000.
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 64. "Speed Gradient Approach to Longitudinal Control of Heavy -Duty Vehicles Equipped with Variable Compression Brake", Maria Druzhinina , Lasse Moklegard and Anna Stefanopoulou, Proceedings AVEC 2000, 5th Int'l Symposium on Advanced Vehicle Control, no. 97, Aug 2000.
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66. "Compression Braking Control for Heavy-Duty Commercial Vehicles", M. Druzhinina, L. Moklegaard, A. G. Stefanopoulou, Proceedings 2000 American Control Conference, vol.4, pp. 28-30, June 2000
67. "Multivariable design limitations for advanced technology automotive powertrains," A. G. Stefanopoulou, Proceedings 2000 American Control Conference, vol.5, pp: 28-30 June 2000
68. "Cylinder Air Charge Estimation in Variable Geometry Turbocharging", O. Storset , R. Smith, A.G. Stefanopoulou, Proceedings 2000 American Control Conference, vol.1, pp. 28-30, June 2000
69. "Evaluation of Turbocharger Power Assist System Using Optimal Control Techniques", I. V. Kolmanovsky, A. G. Stefanopoulou, SAE 2000-01-0519, SAE World Congress, March 2000.
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74. "Multivariable Controller Structure in a Variable Cam Timing Engine with Electronic Throttle and Torque Feedback", S. C. Hsieh, J. S. Freudenberg, and A. G. Stefanopoulou, Proc 1999, Conf. on Control Applications, pp. 465-470 Hawaii, HI
75. "Improving Turbocharged Diesel Engine Operation with Turbo Power Assist System", I. Kolmanovsky, A. G. Stefanopoulou, and B. K. Powell, Proc 1999, Conf. On Control Applications, pp. 454-459, Hawaii, HI.
76. "Emissions and Performance Tradeoffs for Advanced Marine Diesel Propulsion", A. G. Stefanopoulou and R. Smith, IFAC Conf. in Marine Systems, pp.39-44, Fukuoka, Japan, 1999.
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77. "Camless Engine Control for Robust Unthrottled Operation", M. S. Ashhab, A. G. Stefanopoulou, J. A. Cook, and M. Levin, Society of Automotive Engineers Special Publication Series SP-1346, Detroit, 1998.
78. "Decentralized and Multivariable Designs for EGR/VGT Control of a Diesel Engine", M. van Nieustandt, P.E. Moraal, I.V. Kolmanovsky and A.G. Stefanopoulou, P. Wood and M. Criddle, Proceedings of the IFAC Workshop on Advances in Automotive Control, pp 191-196, Feb. 1998.
79. "Issues in Modeling and Control of Intake Flow in Variable Geometry Turbocharged Engines", I.V. Kolmanovsky, A.G. Stefanopoulou, P.E. Moraal and M. van Nieustandt, in 18th IFIP Conference on System Modelling and Optimization, 1998.
80. "Control of Variable Geometry Turbocharged Diesel Engine for Reduced Emissions", A.G. Stefanopoulou, I. Kolmanovsky, and J.S. Freudenberg, 1998 American Control Conference Proceedings, Philadelphia, pp.1383-1388, June, 1998.
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81. "Emission and Drivability Tradeoffs in a Variable Cam Timing SI Engine with Electronic Throttle", S. C. Hsieh, A. G. Stefanopoulou, J. S. Freudenberg, and K. R. Butts, Proc. 1997 Amer. Contr. Conf., pp. 284-288, Albuquerque 1997.
82. "Dynamic Scheduling of Internal Exhaust Gas Recirculation Systems", A. G. Stefanopoulou and I. Kolmanovsky, Proc. IMECE 1997, DSC-Vol. 61, pp. 671-678, Sixth ASME Symposium on Advanced Automotive Technologies, Dallas, 1997.
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83. "Automotive Powertrain Control for Modular Controller Architectures: A Case Study", A.G. Stefanopoulou, K.R. Butts, J.A. Cook, J.S. Freudenberg and J.W. Grizzle, Proc. 1995 Conference on Decision and Control, pp. 768-773.
84. "Modeling and Control of a Spark Ignition Engine with Variable Cam Timing", A.G. Stefanopoulou, J.S. Freudenberg, J.W. Grizzle, M. Haghgoie and P.S. Szpak, Proc. 1995 American Control Conference, pp. 2576-2581.
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85. "Engine Air-Fuel Ratio and Torque Control Using Secondary Throttles", A.G. Stefanopoulou, J.W. Grizzle and J.S. Freudenberg, Proc, 1994 Conference on Decision and Control, pp. 2748-2753.
86. "Interpolation and Numerical Differentiation for Observer Design", S. Diop, J.W. Grizzle, P.E. Moraal and A. Stefanopoulou, Proc. 1994 American Control Conference, pp. 1329-1333.

87. "An Initial Assessment of Fuzzy Logic Vessel Path Control", M.G. Parsons, A.C. Chubb, Y. Cao and A.G. Stefanopoulou, Proc. 1994 IEEE Symposium on Autonomous Underwater Vehicles, pp. 225-232.

Recent and Current Funding:

Federal

- NSF 2006-2010, "Estimation and Control of Water Dynamics in PEM Fuel Cells," \$252,000, PI: Stefanopoulou, 1 PhD Student
- NSF and Tubitak 2009-2012, "Fuel Cell Performance and Tolerance in Dead-ended-anode Operation," \$600,000, PI: Stefanopoulou, co-PI: S. Yesilyurt, 2 PhD students.
- NSF 2009-2012, "Detection and Mitigation of Hazardous Releases in Infrastructure Systems," PI: Katopodes, co-PI: Stefanopoulou, \$500,000, 2 PhD students.
- DOE 2007-2010, "Optimally Controlled Flexible Fuel Powertrain System," \$3,200,000, PI: H. Yilmaz (BOSCH), \$390,000 co-PI: Stefanopoulou (UMICH) 2- students
- DOE 2009-2012, "Transportation Electrification Education Partnership for Green Jobs and Sustainability Mobility," \$2,500,000, PI: Peng, co-PI Stefanopoulou

Industry

- Ford, 2006-2009, "Controlled Thermal Ignition," \$50,000 per year PI, 1. PhD. Student
- Ford-UMICH Alliance 2007-2010, "Diagnosis and Adaptation of Fuel Flexible Combustion, \$156,000, PI: Stefanopoulou, 1 PhD student

Recent Short courses, lectures, and workshops

Oct-Nov 2006, Block Course on Powertrain Control at ETH, Zurich

Dec 2004, Workshop, Control of Energy Processing and Power Systems in 43rd IEEE Conf. on Decision and Control.

May 2005, Workshop, "Control of Fuel Cell Systems," sponsored by Mathworks, Ann Arbor, MI

April 2004, Short Course, "Controlled Engine Breathing," Global Research Center, General Electric, NY

March 2004, Lecture, "Control of Breathing in Internal Combustion Engine and Fuel Cell Systems," Toyota, MI

Jan 2004, Short Course, Powertrain Control, BorgWarner, Auburn Hills, MI

PhD Students (current 4)

1. Jason Siegel, PhD Candidate: "Dynamics and Control of Grid-connected Fuel Cells," Chair (exp grad F10)
2. DongHoon Lee, PhD. Candidate: "Control of Autoignition in Optimized Kinetic Process," Chair (exp grad W10)
3. KyungHo Suh, PhD, Candidate: "Diagnostics and Adaptation for Varying Ethanol Content in Flex Fuel Port-Fuel Injection Engines", Chair (exp grad W10)
4. Nestor Oliverio, PhD Candidate: "Estimation and Optimization of Flex Fuel Combustion", Chair (exp F08)
5. Jixin Chen, PhD Pre-candidate: "Stability in Dead-ended Anode Fuel Cells," Chair

PhD Students (graduated 12)

1. Denise McKay, Ph.D. Candidate: "Diagnostics and Fault Detection for Fuel Cell Systems", co-Chair with Prof. Katapodes from Civil and Environmental Engineering, now Assistant Prof Smith College (Feb08)
2. Buz McCain, Ph.D Candidate: "Model Order Reduction in Multi-Domain Power Systems," Chair (Feb08), now at Ballard
3. Vasilios Tsourapas, "Modeling and Control of Fuel Cell Combined Heat Power Integrated Systems," Winter 07, now at EATON Innovation Center, co-Chair with Prof J. Sun in NAME dept.
4. Chia-Jui (Ray) Chiang, "Modeling and Control of Thermal Ignition," Winter 07, now Assistant Prof. at National Taiwan University of Science and Technology, Chair.
5. Kyungwon Suh, "Control of Hybrid Fuel Cell Vehicle Power," Winter 06, now Fuel Cell Controls group leader Hyundai Motors, Chair.
6. Amey Karnik, "Dynamics and Control of Fuel Cell Stacks with Hydrogen Recirculation", Winter 07, Ford Motor Co, co-Chair with Prof J. Sun in NAME dept.
7. Ardalan Vahidi "Adaptive and Model Predictive Control Methods for Fuel Cell Vehicles" (July 05), Chair, now Assistant Prof. at Clemson University
8. Kathy Peterson, "Nonlinear and Learning Control for Automotive Electromechanical Valve Actuators" (May 05), Chair, was Assistant Prof. Purdue University now Medical School at UMICH.

9. Jay T. Pukrushpan, “Modeling and Control of Fuel Cell Systems and Fuel Processor Systems” (Winter 03), co-Chair with H. Peng, now Assistant Professor, Dept of Mechanical Engineering, Kasetsart University, Bangkok, Thailand.
10. Sami Ashhab, “Dynamical Analysis and Application of Advanced Control Techniques to Atomic Force Microscopes and Camless Engines” (Spr 98), co-Chair with M. Dahleh at UCSB, now Lecturer at Hashemite University in Jordan ,
11. Yan Wang, “Camless Valvetrain: Enabling Technology and Control Techniques” (Fall 01), Chair at UCSB, Technical Specialist, Ford Research Labs.
12. Lasse Moklegaard, “Modeling and Control of Variable Compression Braking in Heavy Duty Vehicles,” (Winter 02), Chair at UCSB, Research Associate in Univ. of Cambridge, UK.

Recent MS Students

- Vasilis Tsourapas, MS: “Modeling and Control of Fuel Cell Combined Heat Power Integrated Systems,” (W05), continuing for PhD., Chair
- Vernon Newhouse, MS:, “Engine Dynamics and Time Resolution”, (W05), General Motors, (non-thesis)
- William Ott, MS: “Dynamics of Water Vapor and Liquid in PEM Fuel Cells,” (W05), South West Research, (non-thesis)
- David Rausen, MS: “A Control-Oriented Model of HCCI Engine”, (W03), UMICH, Consulting company, Chair
- Don Lochner, MS: “Control and Sensitivity Analysis of Air Flow in Proton Exchange Membrane Fuel Cell”, (W. 03), UMICH, Lockheed Martin, Chair

Recent Invited Seminars

Sept 2008: Mechanical Engr Dept, Penn State University
 Apr 2008: Mechanical Engr Dept, University of Minnesota, Minneapolis
 Feb 2008: Distinguished Lecture Series, School of Engineering, University of Connecticut.
 Jan 2008: Mechanical Science and Engineering Department, University of Illinois at Urbana-Champaign
 Sept 2007: Mechanical Engineering Department, Clemson University
 Aug 2007: National Institute for Standards and Technology (NIST), Gaithersburg
 May 2007: University of Seville, Spain
 May 2007: Universitat Politecnica de Catalunya, Barcelona, Spain
 April 2007: United Technologies Research Center, Hartford.
 Nov 2006: Paul Scherrer Institute, Switzerland
 June 2005: invited seminar in Workshop on Modeling and Control of Complex Systems, Ayia Napa, Cyprus
 June 2002, Electrical Engineering Dept. Seminar Series, Rensselaer Polytechnic Institute, Troy, NY.

Consulting:

Turbodyne Inc., CA., Mack Trucks, MD., Caterpillar, IL, United Technologies Research Center, CT, BorgWarner, MI

Membership (Professional)

Fellow IEEE Control Systems Society,
 Fellow ASME Dynamic Systems and Control Division
 Member of Hellenic Institute of Marine Technology
 Member of Technical Chamber of Greece

Membership (Institutional)

Chair, College-Wide Faculty Search (Electric Power/Transportation) 2007-2008
 Member ME Faculty Search 2007-present
 Member NAME Dept review committee (external member) 2008-2009
 Member EECS Dept review committee (external member) 2003-2004,
 Member ME Honors and Awards Committee 2002, 2004, 2005,
 Member ME Graduate Studies Committee, 2001-2002, 2003-2005,
 Member ME Department, Advisory Committee ME Chair search, 2000-2001
 Member ME Department, Safety Committee, 2000-2001

Reviewing and Refereeing Activity:

In Mechanical Engineering society: ASME Journal of Dynamic Systems Measurements and Control and ASME, Journal Energy Gas Turbine and Power

In Electrical Engineering society: IEEE Transactions on Control System Technology, Control System Magazine, and Energy Conversion Systems, and IEEE/ASME Transactions in Mechatronics.

In Chemical Engineering: Journal of Process Control, Chemical Engineering Science

In Marine Engineering society: NAME, Journal of Ship Research

In Automotive Engineering Society: SAE Congress and Transactions (SAE), IJVD, International Journal of Vehicle Dynamics

In Environmental Engineering: The environment magazine (Princeton), MIT Technology Review

Funding organizations: National Science Foundation (CAREER, SBIR, International Collaborations, Sensors, ITR), Australian Research Council (ARC/DETYA), Swedish Council, Norwegian Research Grants, California Energy Commission, PATH