DAVID G. MEYER

EDUCATION

- **Ph.D.** 1987, Electrical Engineering, Stanford University
- **M.S.** 1985, Electrical Engineering, Stanford University
- **M.S.** 1982, Mathematics, University of Wyoming
- **B.S.** 1982, Mathematics, University of Wyoming
- **B.S.** 1982, Electrical Engineering, University of Wyoming

SELECTED REFEREED PUBLICATIONS

Journals

D. G. Meyer and G. F. Franklin, "A connection between normalized coprime factorizations and linear quadratic regulator theory," *IEEE Transactions on Automatic Control,* pp. 227-228, March, 1987.

S. P. Boyd, D. G. Meyer, et.al., "A new computer aided design method for linear controllers and associated architectures," *IEEE Transactions on Automatic Control,* pp. 268-284, March, 1988.

D. G. Meyer, "Two properties of ℓ_1-optimal controllers," *IEEE Transactions on Automatic Control,* pp. 876-878, September, 1988.

D. G. Meyer, "Annihilator structure of a principal ideal: Relation to optimal compensators," *Automatica,* pp. 829-833, November, 1988.

D. G. Meyer, "A comparison of the H_∞ and $\mathbf{R}^N$ state-space induced quotient topologies on stable minimal systems," *International Journal of Control,* vol. 50, pp. 1227-1234, 1989.

D. G. Meyer, "On computing the minimum possible peak value of a multi-input, infinite-horizon steering control," *IEEE Transactions on Automatic Control,* pp. 243-247, February, 1990.

D. G. Meyer, "A parametrization of stabilizing controllers for multirate sampled-data systems," *IEEE Transactions on Automatic Control,* pp. 233-236, February, 1990.

D. G. Meyer, "A new class of shift-varying operators, their shift invariant equivalents, and multi-rate digital systems," *IEEE Transactions on Automatic Control,* pp. 429-433, April, 1990.

D. G. Meyer, "The construction of special coprime factorizations in discrete-time," *IEEE Transactions on Automatic Control,* pp. 588-590, May 1990.

D. G. Meyer, "Fractional balanced model reduction: Model reduction via fractional representation," *IEEE Transactions on Automatic Control,* pp. 1341-1345, December, 1990.

D. G. Meyer, "Some tradeoffs in the construction of interfaces to tactile sensor arrays," *IEEE Journal of Robotics and Automation,* vol. RA-7, pp. 171-175, February, 1991

D. G. Meyer, "The graph topology is quotient Euclidean on nth-order systems," *IEEE Transactions on Automatic Control,* pp. 338-340, March, 1991.

J. C. McEachen and D. G. Meyer, "Tradeoffs for multi-rate controller design and exact comparisons with single-rate control," *IEEE Control Systems Magazine,* pp. 30-35, vol. 11, no. 6, October 1991.

D. G. Meyer, "Cost translation and a lifting approach to the multi-rate LQG problem," *IEEE Transactions on Automatic Control,* pp. 1411-1415, September, 1992.

D. G. Meyer and H. N. G. Wadley, "Model-based feedback control of deformation processing with microstructure goals," *Metallurgical Transactions B,* pp. 289-299, April, 1993.

M. K. Tucker and D. G. Meyer, "Nonlinear Modeling, identification, and feedback control design for the modern effusion cell," *J. Vac. Sci. Technol. A.* vol. 16, No. 6, pp. 3536-3554, Nov/Dec, 1998.

R. Caflisch and D. G. Meyer, "Reduced order modeling of epitaxial growth," *Contemp. Math.*, vol. 330, pp. 9-23, December, 2003.

D. G. Meyer, S. Srinivasan, and G. Semrau, "Dynamic wind estimation based control for small wind turbines," *Renewable Energy,* vol. 50, pp. 259-267 February, 2013

Refereed Conferences

S. P. Boyd and D. G. Meyer, et.al., "A CAD method and architectures for linear controllers," *Proceedings of the 24th Allerton Conference on Communication, Control, and Computing,* October, pp. 889-898, 1986.

D. G. Meyer and S. P. Boyd, "A Note on the order of ℓ_1-optimal compensators," *Proceedings of the 25th IEEE Conference on Decision and Control,* December, pp. 14-15, 1986.

D. G. Meyer, "Intelligent compilers, The Q-parameterization and convex programming: Concepts for an advanced computer-aided control system design method," *The Application of Advanced Computing Con-*

cepts and Techniques in Control Engineering, NATO ASI Series, Vol. F47, Ed. by M. Denham and A. Laub, Springer-Verlag, Berlin, 1988.

D. G. Meyer, "A fractional approach to model reduction," *Proceedings of the 1988 American Control Conference,* June, pp. 1041-1048, 1988.

D. G. Meyer and M. A. Dahleh, "A result on time-varying compensation in ℓ_1 sensitivity minimization," *Proceedings of the 1988 Conference on Decision and Control,* pp. 435-437, December, 1988.

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D. G. Meyer, "Toward a new CAD method for multi-rate, MIMO digital controllers," *Proceedings of the 1988 Conference on Decision and Control,* pp. 1889-1892, December, 1988.

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D. G. Meyer, "On the graph topology," *Proceedings of the 1989 American Control Conference,* Pittsburgh PA, 1989.

D. G. Meyer, "Issues in computer-aided design for time-varying systems," (Invited Paper) *Proceedings of the 1989 Conference on Decision and Control,* Tampa, FL, 1989.

D. G. Meyer, "A new metric that generates the graph topology and is quite computable," *Proceedings of the 1990 Conference on Decision and Control,* pp. 977-980, December, 1990.

H. N. G. Wadley, D. Elzey, L. Hsiung, Y. Lu, J. Duva, K. Dharmasena, and D. G. Meyer, "Intelligent processing of intermetallic composite consolidation," *Proceedings of the 1991 Thermal Structures Conference,* Charlottesville, April, 1991.

T. L. Trinh and D. G. Meyer, "Learning HIP dynamics with neural networks," *Proceedings of the 1991 International Joint Conference on Neural Networks,* Singapore, November 1991.

A. J. Newman and D. G. Meyer, "Observability of HIP nonlinear dynamics," *Proceedings of IEEE South-EastCon,* pp. 703-707, vol. 2, Birmingham, AL, April, 1992.

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T. Rachell and D. G. Meyer, "Fault detection and initial state verification by linear programming for Petri Nets," *Proceedings of the 1992 American Control Conference,* pp. 3191-3197, Chicago, June, 1992.

H. N. G. Wadley, D. M. Elzey, L. M. Hsuing, Y. Lu, J. M. Duva, S. Parthasarathi, K. P. Dharmasena, J. M. Kunze, and D. G. Meyer, "Intelligent Processing of Intermetalic Composite Consolidation," *Thermal Structures and Materials for High-Speed Flight,* vol. 140 of Progress in Astronautics and Aeronautics, E. A. Thornton, ed., AIAA Washington, D.C., 1992.

D. G. Meyer, S. Srinivasan, and L. Barrett, "2nd-Order balancing and 2nd-Order model reduction," *Proceedings of the 1993 American Control Conference,* San Francisco, June, 1993.

D. G. Meyer, "Decoupling temperature and composition in the growth of III-V semiconductors by molecular beam epitaxy," *Conference on Intelligent Epitaxy,* Banff, Canada, June 1995 (Invited Paper).

R. Vancheeswaran and D. G. Meyer, "Path planning the processing of titanium matrix composites," *Proceedings of the 1996 IEEE Conference on Control Applications,* pp. 834-839, Dearborn, MI, September, 1996.

M. Tucker and D. G. Meyer, "Identification and control of the modern effusion cell," *Conference on Intelligent Epitaxy,* Kananaskis, Canada, April 1997.

A. Bennett and D. G. Meyer, "Gain scheduled feedback control of substrate temperature during InGaAs growth by MBE," *Conference on Intelligent Epitaxy,* Kananaskis, Canada, April 1997.

J. E. Hauser and D. G. Meyer, "Trajectory morphing for nonlinear systems," *Proceedings of the 1998 American Control Conference,* vol. 4, pp. 2065-2070, Philadelphia, PA, June, 1998.

D. G. Meyer, Teri Piatt, Ravi Vancheeswaran, H. N. G. Wadley, and Robert Kosut, "Cross-Positive vector fields: Nonlinear invariance," *Proceedings of the 1998 American Control Conference,* vol. 1, pp. 308-312, Philadelphia, PA, June, 1998.

T. Piatt, D. G. Meyer, and R. Vancheeswaran, "Robust controller design for processing titanium alloy composites," *Proceedings of the 1998 Conference on Control Applications,* vol. 1, pp. 1056-1062, Trieste, Italy, September, 1998.

D. G. Meyer, A. D. Bennett, M. K. Tucker, and A. P. Engelmann, "The VMBE System: Virtual Prototyping Within Reach," Invited Talk and Paper for *35th Technical Meeting of the Society of Engineering Science,* Washington State University, September, 1998

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cessing of Titanium Matrix Composites," Invited Talk and Paper for *35th Technical Meeting of the Society of Engineering Science.* Washington State University, September, 1998

J. Hauser and D. G. Meyer, "The trajectory manifold of a nonlinear control system," *Proceedings of the 1998 Conference on Decision and Control,* pp. 1034-1039, Tampa, FL, December, 1998.

M. K. Tucker and D. G. Meyer, "Nonlinear feedback control and observer design for the modern effusion cell," *Proceedings of the 1998 Conference on Decision and Control,* pp. 463-468, Tampa, FL, December, 1998.

R. Caflisch and D. G. Meyer, "Reduced order modeling of epitaxial growth," *Proceedings of the Special Conference on Mathematical Modeling,* Singapore, December, 2002

D. G. Meyer, "Some measure theoretic results for robust asymptotic stability," *Conference on Math Sciences,* pp. 206-210, Zurich, January, 2013

D. G. Meyer and J. Hauser, "Modeling and Exploration of an Active Helmet Design," Submitted to 2013 American Control Conference

SELECTED SPONSORED RESEARCH

"Analysis and Computer-Aided Design of Multi-rate Control Systems," National Science Foundation (1988-1990) $47K

"Theory for Control of Systems with Non-Concurrence in Time," University of Virginia Faculty Research Initiation Grant (1989) $10K

"A New Computer Aided Design Method For Nonlinear Controllers," MarkeTech, Incorporated (1990) $37K

"Convex Optimization and Petri-Net Based Control Systems," National Aeronautics and Space Administration (1990-1991) $88K

"Intelligent Processing of Materials for Design and Manufacturing," National Aeronautics and Space Administration (1990-1995) $875K

"Theory for Multi-rate and Asynchronous Control Systems," National Science Foundation (1992-1993) $20K

"Advanced Materials Processing and Synthesis," Advanced Research Projects Agency (1993-1996) $156K

"Hands On Homework: A New Approach to Out of Class Learning," National Science Foundation (1994) $105K

"Intelligent Processing of Jet Vapor Deposition," Jet Process Corporation (1994) $85K

"Computer Aided Engineering Tools for Deformation Processing of Advanced Composite Materials," National Institute of Standards and Technology (1995-1999) $2.5M

"Integrated Multi-Sensor Control of Molecular Beam Epitaxy for Growth of III-V Compound Semiconductors," Advanced Research Projects Agency (1995-1998) $2.3M

"Virtual Integrated Prototyping for Thin Films," National Science Foundation (1998-2002) $4.5M