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Work Experience

September 2009 to Present

Director, Program on Energy and Sustainable Development, Stanford University

September 1986 to Present

Holbrook Working Professor of Commodity Price Studies, Department of Economics, Stanford University

September 1989 to September 1990

National Fellow, Hoover Institution, Stanford University

June 1985 to August 1986

Postdoctoral Research Fellow, Department of Economics, Harvard University.

June 1980 to September 1981

Visiting Staff Member, Los Alamos National Laboratory, Economics Group, Los Alamos, NM.

Research Interests

Energy and Environmental Economics, Regulatory Economics, Econometric Theory

Teaching Interests

Energy and Environmental Economics, Regulatory Economics, and Econometric Theory and Methods

Education

June 1985, Ph.D., Economics, Harvard University, Cambridge, MA.

June 1984, S.M., Applied Mathematics, Harvard University, Cambridge, MA.

June 1980, M.A., Economics, University of New Mexico

May 1979, B.A., Rice University, Houston, TX.

Professional Awards and Honors

Rice Initiative for the Study of Economics (RISE) Distinguished Scholar Lecture, February 2020

Distinguished Member, Transportation and Public Utility Group, January 2020

T.W. Schultz Memorial Lecture, Agricultural & Applied Economics Association, January 2016

Member, Emissions Market Advisory Committee, California Air Resources Board, 2012-2013

Fellow, Center for Advanced Studies in Behavioral Sciences, 2011-2012

Chairman, Market Surveillance Committee, California ISO, April 1998- April 2011

Research Associate, National Bureau of Economic Research, 1993-Present

Allen V. Cox Medal, 1991. Awarded annually to the Stanford University faculty member who has established a record of excellence directing undergraduate research over a number of years.

Faculty Research Fellow, National Bureau of Economic Research, 1991-1993

National Science Foundation, Presidential Young Investigator Award, 1990-1995

E.B. Earhart Foundation Graduate Fellowship, Harvard University, 1982-1984.

Market Surveillance Committee Reports/Opinions (available from <http://www.caiso.com>)

"ISO Market Surveillance Committee Opinion on Firm Transmission Rights Proposals," May 22, 1998.

"Preliminary Report on the Operation of the Ancillary Services Markets of the California Independent System Operator (ISO)," August 19, 1998.

"Report on the Redesign of the Markets for Ancillary Services and Real-Time Energy," March 25, 1999.

"Reliability Must-Run Contracts for the California Electricity Market," April 2, 1999.

"Report on the Redesign of the California Real-Time Energy and Ancillary Services Markets," October 18, 1999.

"The Competitiveness of the California Energy and Ancillary Services Markets," March 9, 2000.

"Comments on 'Comprehensive Congestion Management Reform--Zonal-Forward Market--White Paper' by California ISO," April 24, 2000.

"Opinion on the California ISO's Proposal for Interim Locational Market Power Mitigation ('Interim LMPM')," June 13, 2000.

"Recent Events in the California Electricity Industry and the Level of Price Caps on the ISO's Energy and Ancillary Services Markets," July 6, 2000.

"Market Surveillance Committee Opinion on the ISO's Proposal For Congestion Management Reform," July 31, 2000.

"Designing the Market for Local Reliability Service," August 3, 2000.

"An Analysis of the June 2000 Price Spikes in the California ISO's Energy and Ancillary Services Markets," September 6, 2000.

"Long-Term Price Cap Policy," September 20, 2000.

"Analysis of 'Order Proposing Remedies for California Wholesale Electric Markets (Issued November 1, 2000)'" December 1, 2000.

"Proposed Market Monitoring and Mitigation Plan for California Electricity Market," February 6, 2001.

"Comments on 'Staff Recommendation for Market Prospective Market Monitoring and Mitigation for California Wholesale Electricity Market,'" March 22, 2001.

"Comments on 'Market Design 2002 Project: Preliminary Draft Comprehensive Design Proposal'," February 20, 2002.

"Comments of the Market Surveillance Committee of the California ISO on the Proposed October 1, 2002 Market Power Mitigation Measures," April 22, 2002

"Supplementary Comments on the 2002 Market Design Proposal of the California ISO," May 16, 2002.

Market Surveillance Committee Reports/Opinions (available from <http://www.caiso.com>)

"Opinion on Oversight and Investigation Review," July 22, 2002.

"Comments on Mitigating Local Market Power and Interim Measures For Intra-Zonal Congestion Management," September 10, 2002.

"Comments on the London Economics Methodology for Assessing the Benefits of Transmission Expansions," October 7, 2002.

"Opinion on Scheduling Priority for Balanced Schedules," May 9, 2003.

"Opinion on the Necessity of Effective Local Market Power Mitigation for a Workably Competitive Wholesale Market," May 29, 2003.

"Comments on Proposal to Establish a Federal Control Area from Within the California ISO Control Area," August 7, 2003.

"Letter of Support for Amendment 55 Filing by California ISO" September 4, 2003.

"Opinion on MD02 Single-Step Implementation and LMP Testing," November 18, 2003.

"Opinion on Large Generator Interconnection Rule," January 7, 2004.

"Managing Congestion Costs in the Miguel-Imperial Valley Region," January 13, 2004.

"Opinion on Defining 'Workable Competition' with Respect to the Creation of New Zones," February 19, 2004.

"Comments on the California ISO's Transmission Expansion Assessment Methodology (TEAM)," June 1, 2004.

"Opinion on the California ISO's Proposal for Honoring Existing Transmission Contracts (ETCs) under the Market Redesign and Technology Upgrade (MRTU)" November 16, 2004.

"Alternatives to Implementing a Locational Marginal Pricing Market," November 16, 2004.

"Market Power Mitigation under Locational Marginal Pricing," November 23, 2004.

"Assessment of An Economic Analysis of the Palo Verde-Devers Line Number 2 (PVD2) Transmission Network Upgrade," February 2, 2005.

Opinion on the California ISO's Market Redesign and Technology Upgrade (MRTU) Conceptual Filing, @ April 26, 2005.

Addendum to the Opinion on the California ISO's Market Redesign and Technology Upgrade (MRTU) Conceptual Filing, May 5, 2005.

Comments on FERC's "Establishment and Use of Reference Prices for Mitigation in Markets Operated by Regional Transmission Organizations," May 17, 2005.

Market Surveillance Committee Reports/Opinions (available from <http://www.caiso.com>)

“Medium-Term Solution to Clearing Intertie Bids in the Real-Time Energy Market,” June 24, 2005.

“Raising the Level of the Bid Cap on the Real-Time Energy Market in California,” November 10, 2005.

“Opinion on Aspects of the California ISO’s Market Redesign and Technology Upgrade (MRTU) Conceptual Filing,” December 1, 2005.

“Issues Relating to Raising the Level of the Bid Cap to \$400/MWh,” March 2, 2006.

“Comments on Low Voltage Transmission Revenue Requirements Cost Recovery (LVTRR) for Non-Load-Serving Participating Transmission Owners,” July 28, 2007.

“Opinion on “Alternative Treatment of New Transmission for Renewable Generation,” October 9, 2006.

“Final Opinion on Long Term Congestion Revenue Rights,” January 22, 2007.

“MSC Opinion on Recent Changes to the ISO Congestion Revenue Rights Proposal,” April 13, 2007.

“Final Opinion on Interim Measures to Address Day-Ahead Underscheduling under MRTU,” July 11, 2007. “Final Opinion on Start-up and Minimum Load Bid Caps Under MRTU,” August 30, 2007.

“MSC Opinion on Long-Term Resource Adequacy under MRTU,” November 9, 2007.

“Final MSC Opinion on Interim Capacity Payment Mechanism,” November 26, 2007.

“Final MSC Opinion on Load-Based and Source-Based Trading of Carbon Dioxide in California,” November 27, 2007.

“Opinion on “The DEC Bidding Activity Rule under MRTU,” May 7, 2008.

Opinion on “Exceptional Dispatch: Options for Market Power Mitigation and Supplemental Pricing under MRTU,” May 7, 2008.

“Opinion on “Modeling and Pricing Integrated Balancing Areas under MRTU,” May 7, 2008.

“MSC Final Opinion on Uneconomic Adjustment in the MRTU Market Optimizations,” October 10, 2008.

“MSC Final Opinion on Proxy Demand Resource,” May 1, 2009.

“Final Opinion on Barriers to Demand Response and the Symmetric Treatment of Supply and Demand Resources,” July 10, 2009.

“Final Opinion on Start-Up and Minimum Load Bidding Rules,” July 17, 2009.

“Opinion on Convergence Bidding,” October 20, 2009.

Market Surveillance Committee Reports/Opinions (available from <http://www.caiso.com>)

“Opinion on Scarcity Pricing,” December 2, 2009.

“Opinion on Changes to Bidding and Mitigation of Commitment Costs,” June 4, 2010.

“Report on the Performance of the California ISO's Local Market Power Mitigation Mechanism During the First Year,” June 4, 2010.

“Opinion on the ISO's Dynamic Transfer Policy for Intermittent Resources,” August 5, 2010.

“Opinion on the Capacity Procurement Mechanism and Compensation and Bid Mitigation for Exceptional Dispatch,” October 18, 2010.

Reports and Opinions of California Air Resources Board Emissions Market Advisory Committee (available at <http://www.arb.ca.gov/cc/capandtrade/emissionsmarketassessment/emissionsmarketassessment.htm>)

“Price Containment Reserve in California’s Greenhouse Gas Emissions Cap-and-Trade Market,”
September 20, 2012

“Public Information Sharing in California’s Greenhouse Gas Emissions Cap-and-Trade Market,”
September 20, 2012

“Resource Shuffling in California’s Greenhouse Gas Emissions Cap-and-Trade Market,” September 20, 2012

“Linkage with Quebec in California’s Greenhouse Gas Emissions Cap-and-Trade Market,” September 20, 2012.

“Price Ceiling in the Greenhouse Gas Emissions Cap-and-Trade Market” November 8, 2013

“Auction Format and Auction Frequency for California’s Greenhouse Gas Emissions Cap-and-Trade Market,” November 8, 2013

“The Timing of Information Release in the Greenhouse Gas Emissions Cap-and-Trade Market,” November 8, 2013.

“Holding Limits in California’s Greenhouse Gas Emissions Cap-and-Trade Market,” November 8, 2013.

“Information Release on Allowance Holdings in the Greenhouse Gas Emissions Cap-and-Trade Market,” February 2014.

“Report of the Market Simulation Group on Competitive Supply/Demand Balance in the California Allowance Market and the Potential for Market Manipulation,” June 2014.

“California's Cap-and-Trade Market Through 2030: A Preliminary Supply/Demand Analysis,” April 2018.

Professional Publications

Competition in Interregional Taxation: The Case of Western Coal, *Journal of Political Economy*, vol. 91, no. 3, 1983, 443-460 (with C.D. Kolstad).

Strategy and Market Structure in Western Coal Taxation, *Review of Economics and Statistics*, vol. LXVII, no. 2, 1985, 239-249 (with C.D. Kolstad).

A Capital-Labor-Energy Model of Fuel Demand in the Manufacturing Sector of Seven Major OECD Countries, *OPEC Review*, vol. X, no. 2, 1986, 179-214. (with C.D. Kolstad, A. Bopp, and R.E. Pendley).

Conjectural Variation and the Indeterminacy of Duopolistic Equilibria, *Canadian Journal of Economics*, vol. XIX, no. 4, 1986, 656-677 (with C.D. Kolstad).

An Exact Test for Multiple Equality and Inequality Constraints in the Linear Regression Model, *Journal of the American Statistical Association*, vol. 82, no. 399, 1987, 782-793.

Duality in Testing Multivariate Hypotheses, *Biometrika*, 1988, vol. 75, no. 3, 611-615.

Measuring Relative Market Power in the Western U.S. Coal Market Using Shapley Values, *Resources and Energy*, 1988, vol 10, 293-314 (with C.D. Kolstad).

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Local and Global Testing of Linear and Nonlinear Inequality Constraints in Nonlinear Econometric Models, *Econometric Theory*, 1989, vol. 5, no. 1, 1-35.

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The Local Nature of Hypothesis Tests Involving Nonlinear Inequality Constraints, *Econometrica*, July 1991, 981-996.

The Econometric Implications of Incentive Compatible Regulation, *Advances in Econometrics*, Volume 9, 1991, George F. Rhodes (ed), pp. 159-204 (with J.S. Feinstein).

The Effect of Domestic Antidumping Law in the Presence of a Foreign Monopolist, *Journal of International Economics*, vol. 32(3/4), 1992, 265-288 (with R.W. Staiger).

Collusive Pricing with Capacity Constraints in the Presence of Demand Uncertainty, *The Rand Journal of Economics*, Summer 1992, 203-220 (with R.W. Staiger).

Telecommunications Demand Modeling, *Information Economics and Policy*, 5, 1993, 179-195.

The Trade Effects of Antidumping Investigations: Theory and Evidence, in *Analytical and Negotiating Issues in the Global Trading System*, Alan W. Deardorff and Robert M. Stern (editors), University of Michigan Press: Ann Arbor, 1994, 231-261 (with R.W. Staiger).

A Procedure for Estimating the Unconditional HIV Infection Distribution and Its Variability, *The Journal of the Royal Statistical Society, Series C*, 43(4), 1994, 559-624 (with J. W. Hay).

- Measuring Industry-Specific Protection: Antidumping in the United States, *Brookings Papers on Economic Activity, Microeconomics*, 1994, 51-118 (with R.W. Staiger).
- An Econometric Analysis of the Asymmetric Information Regulator-Utility Interaction, *Annales d'Economie et de Statistique*, 34, 1994, 13-69.
- Differences in the Uses and Effects of Antidumping Law Across Import Sources, in *The Political Economy of American Trade Policy*, Anne O. Krueger (editor), University of Chicago Press, 1996, 385-415 (with R.W. Staiger).
- The Effect of Import Source on the Determinants and Impacts of Antidumping Suit Activity, in *The Political Economy of Trade Protection*, Anne O. Krueger (editor), University of Chicago Press, 1996, 85-93 (with R.W. Staiger).
- Why Do Firms Simultaneously Participate in Spot and Contract Markets? Evidence from the United States Steam Coal Market, in *Agricultural Markets: Mechanisms, Failures and Regulation*, David Martimort (editor), North-Holland Publishing Company, 1996, 109-158.
- Can Universal Service Survive in a Competitive Telecommunications Environment? Evidence from the Consumer Expenditure Survey, *Information Economics and Policy*, volume 8(3), 1996, 163-204.
- Industry Structure and Regulation in the England and Wales Electricity Market, in *Pricing and Regulatory Innovation under Increasing Competition*, in Michael Crew (editor), Kluwer Academic Publishers, 1996, 65-90 (with R.H. Patrick).
- The Consumption and Welfare Impacts of Competitive Telecommunications Supply: A Household-Level Analysis, *Brookings Papers of Economic Activity, Microeconomics*, 1997, 269-340.
- Changes in the Household-Level Demand for Postal Delivery Services from 1986 to 1994, in *Managing Change in the Postal and Delivery Industries*, Michael Crew and Paul Kleindorfer (editors), Kluwer Academic Publishers, 1997, 162-191.
- Electronic Substitution in the Household-Level Demand for Postal Delivery Services, *A Communications Cornucopia: Markle Foundation Essays on Information Policy*, Roger G. Noll and Monroe E. Price (editors) Brookings Institution Press, 1998, 421-447.
- Price Cap Regulation in Newly Privatized Industries, *Oxford Energy Forum*, August 1998, 12-14.
- Customer Response to Real-Time Prices in the England and Wales Electricity Market: Implications for Demand-Side Bidding and Pricing Options Design Under Competition," in *Regulation Under Increasing Competition*, Michael A. Crew (editor) Kluwer Academic Publishers, 1999, 155-182.
- Market Design and Price Behavior in Restructured Electricity Markets: An International Comparison, in *Competition Policy in the Asia Pacific Region, EASE Volume 8*, Takatoshi Ito and Anne Krueger (editors) University of Chicago Press, 1999, 79-134
- An Empirical Analysis of the Impact of Hedge Contracts on Bidding Behavior in a Competitive Electricity Market, *International Economic Journal*, Summer 2000, 1-40.
- Using Customer-Level Response to Spot Prices to Design Pricing Options and Demand-Side Bids, *Pricing in Competitive Electricity Markets*, Ahmad Faruqui and Kelly Eakin (editors), Kluwer Academic Publishers, 2000, 127-152.

- Identification and Estimation of Cost Functions Using Observed Bid Data: An Application to Electricity, *Advances in Econometrics: Theory and Applications, Eighth World Congress, Volume II*, Mathias Detwatripont, Lars Peter Hansen, and Stephen J. Turnovsky (editors), Cambridge University Press, 2003, 133-169.
- Measuring Market Inefficiencies in California's Restructured Wholesale Electricity Market, *American Economic Review*, December 2002, 1367-1405 (with Severin Borenstein and James Bushell).
- Measuring Unilateral Market Power in Wholesale Electricity Markets: The California Market 1998 to 2000, *American Economic Review*, May 2003, 425-430.
- Diagnosing the California Electricity Crisis, *The Electricity Journal*, August/September 2003, 11-37.
- Regulating Wholesale Electricity Markets in the Aftermath of the California Crisis, *The Electricity Journal*, August/September 2003, 50-55.
- Managing Unilateral Market Power in Wholesale Electricity, in *The Pros and Cons of Antitrust in Deregulated Markets*, edited by Mats Bergman, Swedish Competition Authority, 2004, 78-101.
- Lessons from the California Electricity Crisis, in *Electricity Deregulation*, edited by James M. Griffin and Steven L. Puller, University of Chicago Press, 2005, 145-181.
- The California ISO transmission economic assessment methodology (TEAM): principles and application to Path 26. In 2006 IEEE Power Engineering Society General Meeting, pp. 8-pp. IEEE, 2006. (with Awad, Mohamed, Steven Broad, Keith E. Casey, Jing Chen, Anna S. Geevarghese, Jeffrey C. Miller, Armando J. Perez Anjali Y. Sheffrin, Mingxia Zhang, Eric Toolson, Glenn Drayton, A. Farrokh Rahimi, Benjamin F. Hobbs)
- Unilateral Market Power in Wholesale Electricity Markets, *CESifo DICE Report*, Volume 2, 2006, 10-15.
- Structural Econometric Modeling: Rationales and Example from Industrial Organization, *Handbook of Econometrics, Volume 6A*, (edited by James J. Heckman and Edward E. Leamer), 2007, 4277-4415 (with Peter C. Reiss).
- Quantifying the Supply-Side Benefits from Forward Contracting in Wholesale Electricity Markets, *Journal of Applied Econometrics*, volume 22, 2007, 1179-1209.
- Limiting the Potential Downside of Competitive Wholesale Electricity Markets (in Spanish), *Energia y Regulacion*, (edited by Jose Luis Garcia Delgado and Juan Carlos Jimenez) Thomson Civitas Publishing, 2007, 139-153.
- The Changes in Household Demand for Postal Delivery Services: 1986-2000, *Journal of Econometrics*, 2008, 226-242.
- When Does Value-Based Pricing by a Regulated Firm Increase Welfare? The Pricing of Repositional Notes for Use in Postal Delivery, *Journal of Competition Law and Economics*, 2008.
- Merger Analysis in Restructured Electricity Supply Industries: The Proposed PSEG and Exelon Merger (2006), in *The Antitrust Revolution: Economics Competition and Policy*, edited by John Kwoka and Lawrence White, Oxford University Press: New York, 2008 (with Shaun D. McRae).
- Supreme Court Agrees: FERC Must Regulate Wholesale Markets, *The Electricity Journal*, August/September, 2008, 8-22.

- Reforming the Indian Electricity Supply Industry, in *Sustaining India's Growth Miracle*, edited by Jagdish N. Bhagwati and Charles W. Calomiris, Columbia Business School Publishing, 2008, 115-155.
- When It Comes to Demand Response, Is FERC Its Own Worst Enemy? *The Electricity Journal*, October 2009, Volume 22, Issue 8, 9-18. (with J.B. Bushnell and B.F. Hobbs).
- Upstream versus Downstream CO2 Trading: A Comparison for the Electricity Context, *Energy Policy*, 2010, volume 38, 3632-3643 (with J.B. Bushnell and B.F. Hobbs).
- Using Market Simulations for Economic Assessment of Transmission Upgrades: Applications of the California ISO Approach, in *Restructured Electric Power Systems: Analysis of Electricity Markets with Equilibrium Models*, 2010, Xiao-Ping Zhang (editor), 241-270 (with M.L. Awad, K.E. Casey, A.S. Geevarghese, J.C. Miller, A.F. Rahimi, A.Y. Sheffrin, M.Zhang, E. Toolson, G. Drayton, B.F. Hobbs).
- Using Restructured Electricity Supply Industries to Understand Oligopoly Industry Outcomes, *Utilities Policy*, October 2010.
- Measuring the Benefits of Greater Spatial Granularity in Short-Term Pricing in Wholesale Electricity Markets, *American Economic Review*, May 2011.
- Do Residential Customers Respond to Hourly Prices? Evidence from a Dynamic Pricing Experiment, *American Economic Review*, May 2011.
- How Do Firms Exercise Unilateral Market Power? Evidence from a Bid-Based Wholesale Electricity Market, in *Manufacturing Markets: legal, political and economic dynamics*, Jean-Michel Glachant and Eric Brousseau (editors), Cambridge University Press 2014, pp. 390-420 (with Shaun D. McRae).
- A Comparison of Government Regulation of Risk in the Financial Services and Nuclear Power Industries," in George Schultz and Sidney Drell (editors), *The Nuclear Enterprise*, The Hoover Institution Press, 2012 (with John B. Taylor).
- Managing Demand-Side Economic and Political Constraints on Electricity Industry Restructuring Processes, in Nicholas C. Hope, Anjini Kochar, and Roger Noll (editors) *Economic Reform in India: Challenges, Prospects, and Lessons*, Cambridge University Press, 2012.
- Carbon in the Classroom: Lessons from a Simulation of California's Electricity Market Under a Stringent Cap-and- Trade System, *The Electricity Journal*, August/September 2013, pp. 8-21.
- Economic and Political Constraints on the Demand-Side of Electricity Industry Re-structuring Processes, *Review of Economics and Institutions*, Vol. 4, no. 1, 2013, Article 1.
- Regulating Competition in Wholesale Electricity Supply, *Economic Regulation and Its Reform: What Have We Learned?* Nancy L. Rose (editor), The University of Chicago Press, 2014, pp. 195-289.
- An economic perspective on the EPA's Clean Power Plan, *Science*, March 18, 2015 (with Meredith Fowlie, Lawrence Goulder, Matthew Kotchen, Severin Borenstein, James Bushnell, Lucas Davis, Michael Greenstone, Charles Kolstad, Christopher Knittel, Robert Stavins, Michael Wara, and Catherine Wolfram).
- An Algorithm to Estimate the Two-Way Fixed Effects Model, *Journal of Econometric Methodology*, 2015 (with Paulo Somaini).

- Simulating the Interaction of a Renewable Portfolio Standard with Electricity and Carbon Markets. *The Electricity Journal*, May 2015, with Mark C. Thurber and Trevor L. Davis).
- Measuring the Competitiveness Benefits of a Transmission Investment Policy: The Case of the Alberta Electricity Market, *Energy Policy*, Volume 85, 2015.
- Capacity Payments in a Cost-Based Wholesale Electricity Market: The Case of Chile, *The Electricity Journal*, December 2015 (with Alexander Galetovic and Cristian Munoz).
- Freight Rail Costing and Regulation: The Uniform Rail Costing System, *Review of Industrial Organization*, May 2016.
- Level versus Variability Trade-offs in Wind and Solar Generation Investments: The Case of California, *The Energy Journal*, Volume 27, SI2, 2016.
- Rural energy access through solar home systems: Use patterns and opportunities for improvement, *Energy for Sustainable Development*, 37, 2017 (with Ognen Stojanovski and Mark Thurber)
- High Frequency Evidence on the Demand for Gasoline, *American Economic Journal: Economic Policy* 2017, 9(3): 314–347 (with Laurence Levin and Matthew Lewis).
- Comparing Auction Designs where Suppliers Have Uncertain Costs and Uncertain Pivotal Status, *RAND Journal of Economics*, 49(4), 995-1027 (with Pär Holmberg).
- The Benefits of Purely Financial Participants for Wholesale and Retail Market Performance: Lessons for Long-Term Resource Adequacy Mechanism Design, *Oxford Review of Economic Policy*, Volume 35, Number 2, 2019, pp. 260–290
- The Role of Efficient Pricing in Enabling a Low-Carbon Electricity Sector, *Economics of Energy & Environmental Policy*, 2019, Volume 8, Number 2, 29-52.
- Expecting the Unexpected: Emissions Uncertainty and Environmental Market Design, *American Economic Review*, 109(11), 2019, 3953-3977. (with Severin Borenstein, James Bushnell and Matthew Zaragosa-Watkins)
- Increasing the energy cognizance of electricity consumers in Mexico: Results from a field experiment. *Journal of Environmental Economics and Management* (2020): 102323. (with Stojanovski, Ognen, Gordon W. Leslie, Juan Enrique Huerta Wong, and Mark C. Thurber)
- “Assessing Opportunities for Solar Lanterns to Improve Educational Outcomes in Off-Grid Rural Areas: Results from a Randomized Controlled Trial.” *The World Bank Economic Review*, February 2020 (Stojanovski, O., Thurber, M. C., Muwowo, G., & Harrison, K.)
- “Wholesale Electricity Market Design,” in *Handbook on the Economics of Electricity Markets*, J.M. Glachant, P.L. Joskow, and M. Pollitt (editors), Cambridge University Press (2021).
- “Transmission Planning and Operation in the Wholesale Market Regime,” in *Transmission Network Investment in Liberalized Power Markets*, M.R. Hesamzadeh et. al. (eds.), Lecture Notes in Energy 79, 2021.
- (Machine) Learning from the COVID-19 Lock-Down about Electricity Market Performance with a Large Share of Renewables, *Journal of Environmental Economics and Management*, 2021 (with Christoph Graf and Federico Quaglia).

- “Market design in an intermittent renewable future: cost recovery with zero-marginal-cost resources.” *IEEE Power and Energy Magazine*, 2021, 19(1), 29-40.
- “Retail Pricing in Colombia to Support the Efficient Deployment of Distributed Generation and Electric Stoves” *Journal of Environmental Economics and Management*, 2021, 110, 102541 (with Shaun D. McRae)
- “Long-Term Resource Adequacy in Wholesale Electricity Markets with Significant Intermittent Renewables,” in Matthew J. Kotchen, Tatyana Deryugina, and James H. Stock, editors *Environmental and Energy Policy and the Economy*, University of Chicago Press, 2022.
- "Reference dependence in the demand for gasoline." *Journal of Economic Behavior & Organization* 197 (2022): 561-578 (with Laurence Levin and Matthew S. Lewis).
- "Quantifying the benefits of a nodal market design in the Texas electricity market." *Energy Economics* 112 (2022): 106154 (with Ryan Triolo).
- "Can Distributed Intermittent Renewable Generation Reduce Future Grid Investments? Evidence from France." *Journal of the European Economic Association*, 2023, 21(1): 367-412 (with Nicolas Astier and Ram Rajagopal).
- "Financing the Energy Transition in a Low-Cost Intermittent Renewable Energy Environment," *Climate Change Mitigation: Policies and Lessons for Asia*, 19-53.
- "Game-based investigation of standardized forward contracting for long-term resource adequacy." *The Electricity Journal* 35, no. 7 (2022): 107156 (with Mark C. Thurber, Fletcher H. Passow and Trevor L. Davis).
- "Price Benchmark Regulation of Multiproduct Firms: An Application to the Rail Industry." *The Journal of Law and Economics* 65, no. S1 (2022): S155-S190 (with Wesley W. Wilson)
- “Can Forward Commodity Markets Improve Spot Market Performance? Evidence from Wholesale Electricity,” *American Economic Journal: Policy*, 2023, 15(2): 292-330 (with Akshaya Jha).
- “Estimating cooling demand flexibility in a district energy system using temperature set point changes from selected buildings,” *Applied Energy*, (2023), 336, p.120816 (with Ryan C. Triolo, Ram Rajagopal and Jacques A. de Chalendar)
- "Two-Settlement Locational Marginal Pricing for Distribution Networks." In *2023 IEEE Power & Energy Society General Meeting (PESGM)*, pp. 1-5. IEEE, 2023. (Ryan C. Triolo and Ram Rajagopal).
- “Search with learning in the retail gasoline market,” *RAND Journal of Economics*, 2024, 55(2) 292-323 1-32 (with Xiasong Wu and Matthew S. Lewis.)
- “Show Me the Money! A Field Experiment on Electric Vehicle Charge Timing,” *American Economic Journal: Economic Policy*, 2025, 17(2): 259-284. (with Megan R. Bailey, David P. Brown, and Blake Shaffer).

“Electric Vehicles and the Energy Transition: Unintended Consequences of Time-of-Use Pricing,” *American Economic Review: Insights*, 2025, 7(4): 1-17 (with Megan R. Bailey, David P. Brown, Erica Myers, and Blake Shaffer).

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Conference Proceedings

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Using Shapley Values to Measure Market Power in the Western U.S. Coal Market, in The Changing World Energy Economy, Papers and Proceedings of the Eighth Annual North American Meeting of the International Association of Energy Economists, November 1986, 248-252 (with C.D. Kolstad).

Discussion of Session, Regression Topics: Non-nested Hypothesis Tests, Constrained Estimation and Extrapolation, Proceedings of Business and Economics Statistics Section of the 1987 American Statistical Association Meetings, 1988, 399-401

Electronic Substitution in the Household-Level Demand for Postal Delivery Services, in *Proceedings of the 24th Annual Telecommunications Policy Research Conference*, Gregory Rosston and David Waterman (editors), 1997, 155-179.

ITC Injury Determination and the Abuse of Antidumping Law: Evidence from the US Manufacturing Industries, in David Orden and Donna Roberts (editors), *Understanding Administered Barriers to Agricultural Trade*, The International Agricultural Trade Research Consortium, January 1997, 227-253 (with R.W. Staiger).

Lessons from International Experience with Electricity Market Monitoring, in *10 Anos de Regulacion Energetica en Mexico*, Comision Reguladora De Energie (editor), 2005, 181-202.

Working Papers and Reports (Available at <http://www.stanford.edu/~wolak>)

Strategic Use of Antidumping Law to Enforce Tacit International Collusion, mimeo, August 1993, (with R.W. Staiger).

The Relative Value of Major League Baseball Player Attributes: Evidence from the Baseball Card Market, mimeo, August 1993.

Detecting Misspecified Variance Functions in the Heteroscedastic Regression Models, mimeo, August 1993.

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Regulation and the Leverage of Local Market Power in the California Electricity Market, July 1999 (with James Bushnell).

Competition-Enhancing Local Market Power Mitigation in Wholesale Electricity Markets, November 2002

Report on Brazilian Power Sector Reform, January 2003.

Designing Competitive Wholesale Markets for Latin American Countries, June 2003.

Report on Monitoring Competition in the Central American Electricity Market, March 17, 2004.

International Experience with Electricity Market Monitoring, June 2004

What's Wrong with Capacity Markets? June 2004.

Residential Customer Response to Real-Time Pricing: The Anaheim Critical-Peak Pricing Experiment, March 2006.

Load Impact and Conservation Effect Analytical Model and Results: Ontario Smart Price Pilot, June 2007.

A Comparison of Ex Ante versus Ex Post Vertical Market Power: Evidence from the Electricity Supply Industry, July 2007 (with Joshua Gans).

Using Environmental Emissions Permit Prices to Raise Electricity Prices: Evidence from the California Electricity Market, March 2008 (with Jonathan Kolstad).

Options for Short-Term Price Determination in the Brazilian Wholesale Electricity Market, July 2008

"Does China Underprice Its Oil Consumption?" February 2009 (with Xu Tan).

An Assessment of the Performance of the New Zealand Wholesale Electricity Market, May 2009.

Report on Market Performance and Market Monitoring in the Colombian Electricity Supply Industry, July 2009.

An Experimental Comparison of Critical Peak and Hourly Pricing: The PowerCentsDC Program, March 2010.

Optimal Charging Arrangements for Energy Transmission: Final Report to the United Kingdom Office of Gas and Electricity Regulation (Ofgem), May 2011 (with R. Baldick, B. Hobbs, and J. Bushnell)

An Ancillary Services Payment Mechanism for the Chilean Electricity Supply Industry, July 2011.

Using Information to Improve the Effectiveness of Nonlinear Pricing: Evidence from a Field Experiment, February, 2013 (with Matthew Kahn).

How Do Customers Utilize Real-Time Usage Feedback? Evidence from Singapore (October 2014)

Designing Minimum-Risk Nonlinear Price Schedules for Water Utilities, 2015.

Assessing the Impact of the Diffusion of Shale Oil and Gas Technology on the Global Coal Market (September 2016)

Optimal Network Tariffs for Renewable Electricity Generation, May 2017, (with Thomas Tangeras)

Can Incentives to Increase Electricity Use Reduce the Cost of Integrating Renewable Resources? (April 2017, Revised February 2019 (with Laura Andersen, Lars Garn Hansen and Carsten Jensen)

The Competitive Effects of Linking Electricity Markets Across Space, October 2018, (with Thomas Tangeras)

Evidence from California on the Economic Impact of Inefficient Distribution Network Pricing and a Framework for a Proposed Solution (March 2018)

Fast, Robust", and Approximately Correct: Estimating Mixed Demand Systems, February 2018, (with Bernard Salanie)

Market Power and Incentive-Based Capacity Payment Mechanisms, March 2019, (with Shaun McRae)

Measuring the Impact of Own and Others' Experience on Project Costs in the U.S. Wind Generation Industry, July 2019 (with John Anderson and Gordon Leslie).

Market Performance Assessment in Locational Markets with Non-Convexities, March 2020 (with Christoph Graf and Federico Quaglia)

Simplified Electricity Market Models with Significant Intermittent Renewable Capacity: Evidence from Italy, March 2020 (with Christoph Graf and Federico Quaglia)

An Experimental Comparison of Carbon Pricing Under Uncertainty in Electricity Markets, May 2020 (with Mark Thurber and Trevor Davis).

Breaking routine for energy savings: An appliance-level analysis of small business behavior under dynamic prices? May 2020 (with Jiyong Eom).

Market Power Mitigation Mechanisms for Wholesale Electricity Markets: Status Quo and Challenges, June 2021 (with Christoph Graf, Emilio La Para, and Federico Quaglia).

Cross-border electricity trade in the Bangladesh–Bhutan–India–Nepal (BBIN) Region: A cost-based market perspective, May 2021, (with Jagruti Thakur and Mohammad Reza Hesamzadeh)

Mail processing productivity and local labor market conditions, November 2022 (with Pablo P.-J. Noyola).

Instrumental Variables Estimators and Bounds on Treatment Effects, October 2023 (with Ivan Korolev).

Electricity Pricing for the Energy Transition, (with Shaun McRae).

Reliability Options in Renewables-Dominated Electricity Markets, National Bureau of Economic Research Working Paper 32616, June 2024 (with Shaun McRae).

Take the Load Off: Time and Technology as Determinants of Electricity Demand Response, May 2025 (with Megan Bailey, David P. Brown, and Blake Shaffer).

An Equivalence Test Approach to Rounding Parameter Estimates, November 2025 (with Nicolas Astier).

Nuclear operations with a high penetration of renewables: The case of France, November 2025 (with Nicolas Astier).

“Pricing transmission network and generation unit operating constraints in the European wholesale electricity market,” November 2025 (with Akseli Väiliviita).

“Under the Hood: Penalty Parameters for System Constraint Violations in Short-Term Wholesale Electricity Market-Clearing Mechanisms,” (March 2026) (with Christoph Graf et. al.)

Books

The Future of Electricity Retailing and How We Get There, Springer Verlag, November 2021 (with Ian Hardman)

Book Reviews

Review of *Nonlinear Statistical Models* by A.R. Gallant, *Journal of Business and Economics Statistics*, 1988, vol. 6, no. 3, 518-520.

Review of *Regulatory Reform: Economic Analysis and the British Experience*, by Mark Armstrong, Simon Cowan and John Vickers, *Journal of Economic Literature*, 1996, vol 34, no. 4, 1983-1985.

Review of *Carbon Markets: An International Business Guide*, by Arnaud Brohe, Nick Eyre, and Nicholas Howarth, *Natural Resources Forum*, November 2010, 34, 332-333.

Government Reports

Electric Utility Oil and Gas Use in the Eighties, Los Alamos National Laboratory report LA-9319-MS, Los Alamos, NM (April 1982, with C.D. Kolstad, D.S. Abbey, A.J. Martinez, D.S. Williams, and M.K. Yeaman).

Documentation of the Los Alamos Coal and Utility Modeling System, Version 3.0, Los Alamos National Laboratory report LA-8863-MS, Los Alamos, NM (May 1981, with R.L. Bivins, C.D. Kolstad, and M.L. Stein).

Projecting the Costs of AIDS and ARC in the United States, Final Report for Grant No. HS 06092-01 to the Agency for Health Care Policy and Research, U.S. Department of Health and Human Services, Public Health Service (May 1990, with J.W. Hay and D.H. Osmond).

Congressional Testimony

Senate Committee on Governmental Affairs, June 13, 2001, On Role of Federal Energy Regulatory Commission in Functioning of California Electricity Market

House Committee on Financial Services, June 20, 2001, On California Energy Crisis and Its Implications for Long-Term Energy Policy

Senate Committee on Commerce, Science and Transportation, May 15, 2002, On Enron's Role in California Energy Crisis

Senate Committee on Government Affairs, November 12, 2002, On the Lessons that Should Be Learned About Regulating Energy Markets from the California Electricity Crisis and the Enron Bankruptcy

House Committee on Oversight and Government Reform, February 28, 2008, Implementing a Modern System of Regulation for the Postal Service under the Postal Accountability and Enhancement Act

Newspaper Opinion/Editorial Pieces

“Will FERC See the Light on the Law?” (Los Angeles Times, 4/30/01).

“Want 10,000 megawatts? Use Variable Power Pricing” (San Jose Mercury News, May 4, 2001).

“FERC Fixes Have Fallen Short” (San Jose Mercury News, June 20, 2001).

“\$9 Billion Rebate Should Be Just the Beginning,” (North County Times, July 11, 2001).

“Is Price Gouging Really the Problem?” (San Diego Union Tribune, July 27, 2001)

“FERC's duty is clear: Order energy refunds for California” (San Jose Mercury News, March 28, 2003)

“Upgrading Power Grid Could Lead to Lower Prices” (San Jose Mercury News, August 28, 2003)

“Driving Home Some Reasons for Hike in State Gas Prices?” (San Jose Mercury News, April 25, 2004)

“Don't Blame Energy Speculators for the Rising Cost of Crude Oil,” (San Jose Mercury News, August 4, 2008).

“China's Green Gift to the World,” The Guardian, December 30, 2010.
(<http://www.guardian.co.uk/commentisfree/cifamerica/2010/dec/30/coal-energy-industry>)

“Can the U.S. Compete with China on Green Tech?” New York Times, January 19, 2011.
(<http://www.nytimes.com/roomfordebate/2011/01/18/can-the-us-compete-with-china-on-green-tech/our-comparative-advantage>)

“The Cost of Climate Policy Uncertainty,” The Guardian, February 5, 2011.
(<http://www.guardian.co.uk/commentisfree/cifamerica/2011/feb/05/green-economy-green-jobs>)

“Cap and Trade Should Look to Broader Goals,” (Sacramento Bee, November 2, 2012).

“Be Part of the Solution, Not Part of the Problem,” (EnergyBiz, March 2013).

The Economic and Environmental Benefits of Integrating International Coal and Natural Gas Markets (Boao Review, October 2013).

California Climate Policy: Showing the Way for the World (San Jose Mercury News, December 2013)

An Effective Regulator is Needed for New Zealand Electricity Industry (New Zealand Herald, April 2014)

A Revenue Neutral Carbon Tax for Stanford (Not Divesting Coal) (Los Angeles Times, May 16, 2014)

US and China Cooperation on Climate Policy Design (Boao Review, July 2014)

How Should Financial Markets Be Regulated? (International Banker, Summer 2015)

Economic Policy Challenges Facing California's Next Governor: Electricity Policy Reform (October 2018)

A Carbon Tax to Fund Increased Border Security? (January 2019, The Hill)

Tax brown energy or subsidize green? The choice is easy (February 2019, The Hill)

In California, a third-world solution to a first-world problem (October 2019, The Hill)

Why federal regulation is not the answer (March 8, 2021, Austin American Statesman).

Stanford Institute for Economic Policy Research (SIEPR) Policy Briefs

(available from http://siepr.stanford.edu/papers/brief_archive.html)

What Went Wrong With California's Restructured Electricity Market? November 2000.

Making Sense of the Enron Nonsense, May 2002.

The Benefits of an Electron Superhighway, November 2003

Liquefied Natural Gas (LNG) is Essential to California's Energy Future, December 2004.

Reduce Oil Price Volatility for a Smooth Transition to a Green Energy Future, June 2006

An Ethanol Policy that Benefits All Americans, June 2007.

Low Carbon Fuel Standards: Do They Really Work? May 2008.

Careful What You Wish For: The Shale Gas Revolution and Natural Gas Exports, November 2012.

Universities Can Do Better Than Symbolism: A Revenue-Neutral Carbon Tax (October 2014)

The End of Expensive Oil? (March 2015).

Retail Pricing to Support the 21st Century Distribution Grid (November 2017)

Reports of the Demise of Carbon Pricing are Greatly Exaggerated (August 2018)

Research Support

Winter 1989 to Spring 1990

Econometric Models of the Regulatory Rate-Setting Process, Center for Economic Policy Research, Stanford University, \$20,000.

Summer 1990 to Spring 1991

Regulation of Water Delivery in California, Stanford University Office of Technology Licensing Research Incentive Fund, \$20,750.

Summer 1990 to Summer 1991

Empirical Studies of Japanese Industry, CEPR Program on the Japanese Economy, \$17,000.

Summer 1990 to Summer 1996

Empirical Studies of Firm and Industry Behavior, 5-Year Presidential Young Investigator Award, National Science Foundation, \$312,500.

Summer 1993 to Winter 1997

The Trade Effects of Antidumping Investigations, 3-Year National Science Foundation, \$165,000 (with R.W. Staiger).

Summer 1994 to Spring 1996

Studies of Competition and Demand in Telecommunications, Postal Delivery and Cable Television Markets, Markle Foundation, \$75,000.

Summer 1994 to Summer 1996

Measuring the Structure of Consumer Demand for Electricity Using Real-Time Pricing Data from the United Kingdom Electricity Market, Electric Power Research Institute, \$30,000.

Summer 1995 to Summer 1996

A Comparison of Statistical Forecasting Models for Real-Time Electricity Price, Electric Power Research Institute, \$35,000.

Summer 1997 to Summer 2001

Empirical Studies of Regulated Industries, National Science Foundation, 3-Year Grant, National Science Foundation, \$212,612.

Autumn 2001 to Summer 2002

Research on California Energy Policy, Energy Foundation, 1-Year, \$65,000.

Summer 2004 to Summer 2007

Empirical Methods for Measuring and Improving Market Performance in Network Industries, 3-Year Grant, National Science Foundation, \$156,000

Autumn 2009 to Spring 2010

Regulatory Barriers to Lowering the Carbon Content of Energy Services, 1-Year Grant, Kauffman Foundation, \$20,000.

Autumn 2010 to Spring 2011

A Field Experiment to Assess the Impact of Information Provision on Household Electricity Consumption, California Air Resources Board, 1-Year, \$56,000

Autumn 2010 to Spring 2012

Reducing the Regulatory Barriers to a Transmission Network that Facilitates Renewable Energy Deployment in a Wholesale Market Regime, TomKat Center for Sustainable Energy, 2-Year, \$255,000.

Autumn 2010 to Spring 2011

Transmission Planning to Support Renewable Energy at Scale and Enhance Wholesale Electricity Competition, Electric Power Research Institute, 1-Year, \$100,000

Autumn 2011 to Spring 2012

Directly Measuring the Value of Solar Home Systems in East Africa, 1-Year, Freeman Spogli Institute for International Studies, \$40,000.

Autumn 2012 to Spring 2014

A Comparative Performance Analysis of National and Independent Oil Companies, Chervon Corporation, 2-Year, \$180,000.

Autumn 2012 to Spring 2014

Measuring the Reliability versus Cost Trade-offs in Wind Energy Investments in California, Precourt Institute for Energy, 2-Year, \$300,000.

Autumn 2013 to Spring 2015

Carbon in the Classroom: A Game-Based Approach to Modeling Energy and Environmental Markets
Precourt Institute for Energy, 2-Year, \$300,000.

Autumn 2019 to Spring 2023

A Framework for Energy Policy Prototyping to Support the Energy Transition
Alfred P. Sloan Foundation, 4-Year \$600,000

Professional Service

President, Transportation and Public Utilities Group (TPUG), AEA, 2021-2022.
Member, Economics Graduate Fellowship Panel, National Science Foundation (NSF), 2007
Member, Electric Power Networks Efficiency and Security Panel, NSF, 2002-2003
Member, Economics Panel, NSF, 1998-2000
Associate Editor, *The Journal of Economic Literature*, 1994-1998
Associate Editor, *Journal of Econometrics*, 1994-2002
Associate Editor, *Journal of Industrial Economics*, 1995-2002
Associate Editor, *Journal of Business and Economic Statistics*, 1995-1998
Program Committee Member, 1995 North American Winter Meeting of the Econometric Society.
Program Committee Member, 1996 American Economic Association Meetings
Program Committee Member, 1997 North American Summer Meeting of the Econometric Society
Program Committee Member, 2003 American Economic Association Meetings

Departmental and University Service

Director of Undergraduate Studies, Department of Economics, September 2019 to June 2023
Co-Director, Natural Gas Initiative, Precourt Institute for Energy, April 2019 to June 2024
Member, Faculty Senate, September 2012-June 2014
Director, Program on Energy and Sustainable Development, September 2009-Present
Member, Executive Committee, Precourt Institute for Energy, September 2010-2019
Member, Global Action Fund Selection Committee, Freeman Spolgi Institute for International Studies, September 2009-2014
Member, Environmental Ventures Fund Selection Committee, Woods Institute for Environmental September 2000-September 2011
Session-Organizer, Stanford Institute for Theoretical Economics for Summers of 1994-1996, 1998-Present
Co-Chairman, Junior Faculty Recruiting Committee, 1992, 1997, 2000-2006, 2008
Participant, Economics Department Summer Undergraduate Research Assistant Program, 2000-Present
Econometrics Comprehensive Exam Committee, 1989-2017
Faculty Participant, Athlete Recruiting for Stanford Athletic Department, 1989-Present
Associate Director, Center for Economic Policy Research, Stanford University, 1996-1998
Member, Dean's Advisory Committee on Curriculum, 1994-1995.
Director of Undergraduate Studies, Department of Economics, September 1994-September 1996
Associate Chair, Department of Economics, September 1993-September 1994
Faculty Member, American Economic Association Summer Minority Program, 1993-1995.
Faculty Participant in Stanford Summer Minority Research Program, 1989-1992.

Graduate Students Supervised (Primary Advisor)

Vivian Ho Hamilton, Ph.D., 1991
Miriam Culjak, Ph.D., 1993
Christopher P. Kilby, Ph.D., 1993
Dana P. Goldman, Ph.D., 1994
Stephen Schmidt, Ph.D., 1994
Paul Liu, Ph.D., 1995
Gregory Crawford, Ph.D., 1997
Christopher Timmons, Ph.D. 1997
Jennifer Chen, Ph.D., 1997
Matthew Shum, Ph.D., 1998
Raphael Thomadsen, Ph.D., 2001
Johannes Van Biesebroeck, Ph.D., 2001
Jun Ishii, Ph.D., 2001
Marshall Jingming Yan, Ph.D., 2001
Faye Steiner, Ph.D., 2001
Ron Borzekowski, Ph.D., 2002
Jeremy Fox, Ph.D., 2003
John Romley, Ph.D., 2003
Robert McMillan, Ph.D., 2004
Seung-Hyun Hong, Ph.D., 2005
Peyron Law, Ph.D., 2005
Azeem Shaikh, Ph.D., 2006
Nathan Goldstein, Ph.D. 2007
Andres Santos, Ph.D., 2007
Shaun D. McRae, Ph.D. 2010
Paulo Somaini, Ph.D. 2012
John Anderson, Ph.D., 2013
Akshaya Jha, Ph.D., 2016
Onder Polat, Ph.D. 2017
Christopher Bruegge, Ph.D. 2018
Ivan Korolev, Ph.D. 2018
Gordon Leslie, Ph.D. 2018
Trevor Davis, Ph.D. 2019
Jin Chen, Ph.D. 2019
Evan Magnusson, Ph.D. 2020
Leon Zhang, Ph.D. 2021
Rodrigo Naumann, Ph.D. 2023
Kurt Sweat, Ph.D., 2024

Graduate Students Supervised (Reader/Advisor)

Sarah J. Lane, Ph.D. , 1988
Craig College, Ph.D., 1989
David Green, Ph.D., 1990
Kuen-Kwan Ryu, Ph.D., 1990
Joel Waldfogel, Ph.D., 1990
Jeffrey Sundberg, Ph.D., 1991
Walter Garcia-Fontes, Ph.D., 1992
Penny Goldberg, Ph.D., 1992
Ng Hock Guan, Ph.D., 1992
Hilary W. Hoynes, Ph.D., 1992
J. Bradford Jenson, Ph.D., 1992

William H. Lehr, Ph.D., 1992
Susan Smart, Ph.D., 1992
Lisa Takeyama, Ph.D., 1992
Michael Cragg, Ph.D., 1993
Mario Epelbaum, Ph.D., 1993
Bernd Fitzenberger, Ph.D., 1993
Young Sun Ghauh, Ph.D., 1993.
Fumihiro Goto, Ph.D., 1993
Barton H. Hamilton, Ph.D., 1993
Giovanni Maggi, Ph.D., 1994
Thomas N. Hubbard, Ph.D., 1995
Dongseok Kim, Ph.D., 1995
Scott Stern, Ph.D., 1995
Janusz Mrozek, Ph.D., 1996
Hoon Sahib, Soh, Ph.D., 1996
Harumi Ito, Ph.D., 1997
Jason S. Scott, Ph.D., 1997
Andrea Breuhan, Ph.D. 1997
William Vogt, Ph.D. 1998
Michael Mazzeo, Ph.D., 1998
David Mancuso, Ph.D., 1999
Cristian Santesteban, Ph.D., 2000
Koshy Mathai, Ph.D. 2002
Mark Jacobsen, Ph.D. 2007
Matthew Gulker, Ph.D. 2008
Albert Huang, Ph.D., 2010
Kester Tong, Ph.D.. 2013
Pasha Stetsenko, Ph.D., 2013
Jessie Li, Ph.D., 2017
Ben Mills, Ph.D. 2020
Ryan Triolo, Ph.D. 2023