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Peter Cramton is Professor of Economics at the University of Cologne and the University of Maryland. Since 1983, he has conducted research on auction theory and practice. This research appears in leading economics journals. The focus is the design of auction-based markets. Applications include communications, electricity, and financial markets. On the practical side, he is an independent director on the board of the Electric Reliability Council of Texas and an advisor and chief economist to several companies. Since 1993, he has advised 13 governments and 41 bidders in spectrum auctions. He is a co-inventor of the spectrum auction design used in Canada, Australia, and many European countries to auction spectrum. Since 2001, he has played a lead role in the design and implementation of electricity and gas auctions in North America, South America, and Europe. He has advised on the design of carbon auctions in Europe, Australia, and the United States, including conducting the world's first greenhouse-gas auction held in the UK in 2002. He has led the development of innovative auctions in new applications, such as auctions for airport slots, wind rights, diamonds, medical equipment, and Internet top-level domains. He received his B.S. in Engineering from Cornell University in 1980 and his Ph.D. in Business from Stanford University in 1984.

Peter Cramton's: [Google Scholar Citations](#) | [Major publications](#) | [Recent publications](#)

Academic position

Professor of Economics—Department of Economics, University of Maryland, August 1996 to present.

Affiliate, Agriculture and Resource Economics, 2008 to present.

International Faculty—Department of Economics, University of Cologne, July 2015 to present.

Part-time Professor of Economics—Department of Economics, European University Institute, September 2015 to 2017.

Education

Stanford University, Doctor of Philosophy, June 1984, Graduate School of Business.

Dissertation: *The Role of Time and Information in Bargaining*.

Cornell University, Bachelor of Science with distinction, May 1980, School of Operations Research and Industrial Engineering. Graduated first in class.

Recent courses

Market Design. Doctoral and advanced masters course on market design.

Advanced Microeconomics. Doctoral course in game theory with emphasis on auctions and market design.

Methods and Tools of Economic Analysis. Undergraduate introduction to the mathematical tools used in economics.

Game Theory. Undergraduate introduction to modern game theory.

Research interests

Market design, auction theory and practice, bargaining theory, industrial organization, experimental economics, contract theory, game theory, decision theory, labor economics, information economics, and law and economics.

List of publications

Major books

Global Carbon Pricing—The Path to Climate Cooperation, (with David JC MacKay, Axel Ockenfels and Steven Stoff), *MIT Press*, 2017.

Combinatorial Auctions, (with Yoav Shoham and Richard Steinberg) *MIT Press*, 2006.

Top-five economics journals

“The High-Frequency Trading Arms Race: Frequent Batch Auctions as a Market Design Response,” (with Eric Budish and John Shim) *Quarterly Journal of Economics*, 130:4, 1547-1621, November 2015.

“Demand Reduction and Inefficiency in Multi-Unit Auctions,” (with Lawrence M. Ausubel, Marek Pycia, Marzena Rostek, and Marek Weretka) *Review of Economic Studies*, 81:4, 1366-1400, 2014.

“Strikes and Holdouts in Wage Bargaining: Theory and Data,” (with Joseph S. Tracy) *American Economic Review*, 82, 100–121, 1992.

“Strategic Delay in Bargaining with Two-Sided Uncertainty,” *Review of Economic Studies*, 59, 205–225, 1992.

“Dissolving a Partnership Efficiently,” (with Robert Gibbons and Paul Klemperer) *Econometrica*, 55, 615–632, 1987.

“Bargaining with Incomplete Information: An Infinite-Horizon Model with Two-Sided Uncertainty,” *Review of Economic Studies*, 51, 579–593, 1984.

Premier operations research journals

“Quadratic Core-Selecting Payment Rules for Combinatorial Auctions,” (with Robert Day) *Operations Research*, 60:3, 588-603, 2012.

“Dynamic Bargaining with Transaction Costs,” *Management Science*, 37, 1221–1233, 1991.

Other publications

“Electricity Market Design,” *Oxford Review of Economic Policy*, 33:4, 589-612, November 2017.

“The German 4G Spectrum Auction: Design and Behavior” (with Axel Ockenfels), *Economic Journal*, 127, F305-F324, October 2017.

“Translating the Collective Climate Goal into a Common Climate Commitment” (with Axel Ockenfels and Jean Tirole), *Review of Environmental Economics and Policy*, 11:1, 165-171, February 2017.

“Open Access Wireless Markets” (with Linda Doyle), *Telecommunications Policy*, 41:5-6, 379-390, June 2017.

“Price Carbon—I will if you will” (with David JC MacKay, Axel Ockenfels and Steven Stoft), *Nature*, 15 October 2015.

“Symposium on International Climate Negotiations” (with Axel Ockenfels and Steven Stoft), *Economics of Energy & Environmental Policy*, 4:2, 1-64, September 2015.

“An International Carbon-Price Commitment Promotes Cooperation” (with Axel Ockenfels and Steven Stoft), *Economics of Energy & Environmental Policy*, 4:2, 51-64, September 2015.

“Designed to Fail: The Medicare Auction for Durable Medical Equipment” (with Sean Ellermeyer and Brett E. Katzman) *Economic Inquiry*, 53:1, 469-485, 2015.

“Implementation Details for Frequent Batch Auctions: Slowing Down Markets to the Blink of an Eye” (with Eric Budish and John Shim), *American Economic Review P&P*, 104:5, 418-424, May 2014.

“Capacity Market Fundamentals” (with Axel Ockenfels and Steven Stoft), *Economics of Energy & Environmental Policy*, 2:2, September 2013.

“Spectrum Auction Design,” *Review of Industrial Organization*, 42:2, 161-190, March 2013.

“Common-Value Auctions with Liquidity Needs: An Experimental Test of a Troubled Assets Reverse Auction” (with Lawrence M. Ausubel, Emel Filiz-Ozbay, Nathaniel Higgins, Erkut Ozbay, and Andrew Stocking). In the *Handbook of Market Design*, Nir Vulkan, Alvin E. Roth, and Zvika Neeman (eds), Oxford University Press. Chapter 20, 489-554, 2013.

“Auctioning Rough Diamonds: A Competitive Sales Process for BHP Billiton’s Ekati Diamonds” (with Samuel Dinkin and Robert Wilson). In the *Handbook of Market Design*, Nir Vulkan, Alvin E. Roth, and Zvika Neeman (eds), Oxford University Press. Chapter 12, 299-324, 2013.

“Fear of Losing in a Clock Auction” (with Emel Filiz-Ozbay, Erkut Y. Ozbay, and Pacharasut Sujarittanonta), *Review of Economic Design*, 16:2-3, 119-134, 2012.

“Discrete Clock Auctions: An Experimental Study” (with Emel Filiz-Ozbay, Erkut Ozbay, and Pacharasut Sujarittanonta), *Experimental Economics*, 15:2, 309-322, 2012.

“How to Fix the Inefficiency of Global Cap and Trade” (with Steven Stoft), *The Economists’ Voice*, 9:1, April 2012.

- “Global Climate Games: How Pricing and a Green Fund Foster Cooperation” (with Steven Stoft), *Economics of Energy & Environmental Policy*, 1:2, March 2012. [Appendix, Spreadsheet]
- “Economics and Design of Capacity Markets for the Power Sector” (with Axel Ockenfels) *Zeitschrift für Energiewirtschaft*, 36:113-134, 2012.
- “Ökonomik und Design von Kapazitätsmärkten im Stromsektor” (with Axel Ockenfels), *Energiewirtschaftlichen Tagesfragen*, 61:9, 14-15, 2011.
- “Using Spectrum Auctions to Enhance Competition in Wireless Services” (with Evan Kwerel, Gregory Rosston, and Andrzej Skrzypacz), *Journal of Law and Economics*, 54:4, S167-S188, 2011.
- “Pricing Rule in a Clock Auction” (with Pacharasut Sujarittanonta), *Decision Analysis*, 7, 40-57, 2010.
- “Market Design: Auctions and Matching.” In John Siegfried (ed.), *Better Living Through Economics*, Harvard University Press, 223-225, 2010.
- “Reducing Healthcare Costs Requires Good Market Design” (with Brett E. Katzman) *The Economists’ Voice*, 7:4, October 2010.
- “Price is a Better Climate Commitment” (with Steven Stoft), *The Economists’ Voice*, 7:1, February 2010.
- Wind Energy in Colombia: A Framework for Market Entry* (with Walter Vergara, Alejandro Deeb, Natsuko Toba, and Irene Leino) The World Bank, Washington, DC, July 2010.
- “Using Forward Markets to Improve Electricity Market Design” (with Lawrence M. Ausubel), *Utilities Policy*, 18, 195-200, 2010.
- “Virtual Power Plant Auctions” (with Lawrence M. Ausubel), *Utilities Policy*, 18, 201-208, 2010.
- “Auctioning Greenhouse Gas Emissions Permits in Australia” (with Regina Betz, Stefan Seifert, and Suzi Kerr), *Australian Journal of Agricultural and Resource Economics*, 54, 219-238, 2010.
- “How Best to Auction Natural Resources,” in Philip Daniel, Brenton Goldsworthy, Michael Keen, and Charles McPherson (eds.), *Handbook of Oil, Gas And Mineral Taxation*, Chapter 10, Washington, DC: IMF, 2009.
- “Auctioning the Digital Dividend,” in Jan Kramer and Stefan Seifert (eds.), *Communications Regulation in the Age of Digital Convergence: Legal and Economic Perspectives*, Karlsruhe, Germany: Karlsruhe Institute of Technology, 2009.
- “Making Sense of the Aggregator Bank” (with Lawrence M. Ausubel), *The Economists’ Voice*, 6:3, February 2009.
- “No Substitute for the ‘P’-Word in Financial Rescue” (with Lawrence M. Ausubel), *The Economists’ Voice*, 6:2, February 2009.
- “Innovation and Market Design.” In Josh Lerner and Scott Stern (eds.), *Innovation Policy and the Economy*, Volume 9, National Bureau of Economic Research, 113-137, Chicago: University of Chicago Press, 2009.
- “Auction Design Critical for Rescue Plan” (with Lawrence M. Ausubel), *The Economists’ Voice*, 5:5, September 2008.
- “Forward Reliability Markets: Less Risk, Less Market Power, More Efficiency” (with Steven Stoft) *Utilities Policy*, 16, 194-201, 2008.

- “The Effect of Incumbent Bidding in Set-Aside Auctions: An Analysis of Prices in the Closed and Open Segments of FCC Auction 35” (with Allan T. Ingraham and Hal J. Singer) *Telecommunications Policy*, 32, 273-290, 2008.
- “An Overview of Combinatorial Auctions” (with Yoav Shoham and Richard Steinberg), *ACM SIGecom Exchanges*, 7, 3-14, 2007.
- “Market-Based Alternatives for Managing Congestion at New York’s LaGuardia Airport,” (with Michael O. Ball, Lawrence M. Ausubel, Frank Berardino, George Donohue, Mark Hansen, and Karla Hoffman), in *Optimal Use of Scarce Airport Capacity*, Proceedings of AirNeth Annual Conference, The Hague, April 2007.
- “How Best to Auction Oil Rights,” in Macartan Humphreys, Jeffrey D. Sachs, Joseph E. Stiglitz (eds.), *Escaping the Resource Curse*, Chapter 5, 114-151, New York: Columbia University Press, 2007.
- “Colombia Firm Energy Market,” (with Steven Stoft), *Proceedings of the Hawaii International Conference on System Sciences*, January 2007.
- “Why We Need to Stick with Uniform-Price Auctions in Electricity Markets,” (with Steven Stoft), *Electricity Journal*, 20:1, 26-37, 2007.
- “Simultaneous Ascending Auctions,” in Peter Cramton, Yoav Shoham, and Richard Steinberg (eds.), *Combinatorial Auctions*, Chapter 4, 99-114, MIT Press, 2006.
- “Introduction to Combinatorial Auctions,” (with Yoav Shoham and Richard Steinberg) in Peter Cramton, Yoav Shoham, and Richard Steinberg (eds.), *Combinatorial Auctions*, 1-13, MIT Press, 2006.
- “The Clock-Proxy Auction: A Practical Combinatorial Auction Design,” (with Lawrence M. Ausubel and Paul Milgrom) in Peter Cramton, Yoav Shoham, and Richard Steinberg (eds.), *Combinatorial Auctions*, Chapter 5, 115-138, MIT Press, 2006.
- “Dynamic Auctions in Procurement,” (with Lawrence M. Ausubel) in Nicola Dimitri, Gustavo Piga, and Giancarlo Spagnolo (eds.) *Handbook of Procurement*, Cambridge, England: Cambridge University Press, 2006.
- “A Capacity Market that Makes Sense,” (with Steven Stoft) *Electricity Journal*, 18, 43-54, August/September 2005.
- “Competitive Bidding Behavior in Uniform-Price Auction Markets,” *Proceedings of the Hawaii International Conference on System Sciences*, January 2004.
- “Auctioning Many Divisible Goods,” (with Lawrence M. Ausubel) *Journal of the European Economic Association*, 2, 480-493, April-May 2004.
- “Electricity Market Design: The Good, the Bad, and the Ugly,” *Proceedings of the Hawaii International Conference on System Sciences*, January, 2003.
- “Vickrey Auctions with Reserve Pricing,” (with Lawrence M. Ausubel) *Economic Theory*, 23, 493-505, April 2004.
- “Unions, Bargaining and Strikes,” (with Joseph S. Tracy) in John T. Addison and Claus Schnabel, eds., *International Handbook of Trade Unions*, Cheltenham, UK: Edward Elgar, Chapter 4, 86-117, 2003.
- “Tradeable Carbon Permit Auctions: How and Why to Auction Not Grandfather,” (with Suzi Kerr) *Energy Policy*, 30, 333-345, 2002.

- “Collusive Bidding in the FCC Spectrum Auctions,” (with Jesse Schwartz) *Contributions to Economic Analysis & Policy*, 1:1, 2002.
- “Bargaining with Incomplete Information,” (with Lawrence M. Ausubel and Raymond J. Deneckere), Robert J. Aumann and Sergiu Hart, eds., *Handbook of Game Theory*, Vol. 3, Amsterdam: Elsevier Science B.V., Chapter 50, 1897-1945, 2002.
- “Spectrum Auctions,” in Martin Cave, Sumit Majumdar, and Ingo Vogelsang, eds., *Handbook of Telecommunications Economics*, Amsterdam: Elsevier Science B.V., Chapter 14, 605-639, 2002.
- “Uniform Pricing or Pay-as-Bid Pricing: A Dilemma for California and Beyond,” (with Alfred E. Kahn, Robert H. Porter, and Richard D. Tabors), *Electricity Journal*, 70-79, July 2001.
- “Collusive Bidding: Lessons from the FCC Spectrum Auctions,” (with Jesse Schwartz) *Journal of Regulatory Economics*, 17, 229-252, May 2000.
- “A Review of Markets for Clean Air: The U.S. Acid Rain Program,” *Journal of Economic Literature*, 38, 627-633, September 2000.
- “The Role of the ISO in U.S. Electricity Markets: A Review of Restructuring in California and PJM,” (with Lisa Cameron) *Electricity Journal*, 71-81, April 1999.
- “The Effect of Collective Bargaining Legislation on Strikes and Wages,” (with Morley Gunderson and Joseph S. Tracy) *Review of Economics and Statistics*, 81:3, 475-487, 1999.
- “Impacts of Strike Replacement Bans in Canada,” (with Morley Gunderson and Joseph S. Tracy), *Labor Law Journal*, 50:3, 173-179, Fall 1999.
- “The Distributional Effects of Carbon Regulation,” (with Suzi Kerr) in Thomas Sterner (ed.) *The Market and the Environment*, Cheltenham, United Kingdom: Edward Elgar, chapter 12, 1999.
- “Ascending Auctions,” *European Economic Review*, 42:3-5, 745-756, May 1998.
- “Efficient Relocation of Spectrum Incumbents,” (with Evan Kwerel and John Williams) *Journal of Law and Economics*, 41, 647-675, October 1998.
- “Auctions and Takeovers,” *New Palgrave Dictionary of Economics and the Law*, Peter Neuman (ed.), London: MacMillan Press, 1, 122-125, 1998.
- “The Use of Strike Replacements in Union Contract Negotiations: the U.S. Experience 1980–1989,” (with Joseph S. Tracy) *Journal of Labor Economics*, 16:4, 667-701, 1998.
- “Efficient Relocation of Spectrum Incumbents,” (with Evan Kwerel and John Williams) *Journal of Law and Economics*, 41, 647-675, October 1998.
- “The Efficiency of the FCC Spectrum Auctions,” *Journal of Law and Economics*, 41, 727-736, October 1998.
- “The FCC Spectrum Auctions: An Early Assessment,” *Journal of Economics and Management Strategy*, 6:3, 431-495, 1997.
- “Synergies in Wireless Telephony: Evidence from the Broadband PCS Auctions,” (with Lawrence M. Ausubel, R. Preston McAfee, and John McMillan) *Journal of Economics and Management Strategy*, 6:3, 497-527, 1997.
- “Using Auctions to Divest Generation Assets,” (with Lisa J. Cameron and Robert Wilson) *Electricity Journal*, 10:10, 22-31, December 1997.

- “Deficit Reduction Through Diversity: How Affirmative Action at the FCC Increased Auction Competition,” (with Ian Ayres) *Stanford Law Review*, 48:4, 761-815, 1996.
- “The FCC Spectrum Auctions: An Early Assessment,” *Journal of Economics and Management Strategy*, 6:3, 431-495, 1997.
- “Money Out of Thin Air: The Nationwide Narrowband PCS Auction,” *Journal of Economics and Management Strategy*, 4, 267–343, 1995.
- “Ratifiable Mechanisms: Learning from Disagreement,” (with Thomas R. Palfrey) *Games and Economic Behavior*, 10, 255–283, 1995.
- “Deception and Mutual Trust: A Reply to Strudler,” (with J. Gregory Dees) *Journal of Business Ethics*, 5, 813–822, 1995.
- “Wage Bargaining with Time-Varying Threats,” (with Joseph S. Tracy), *Journal of Labor Economics*, 12, 594–617, 1994.
- “Relational Investing and Agency Theory,” (with Ian Ayres) *Cardozo Law Review*, 15, 1033–1066, 1994.
- “The Determinants of U.S. Labor Disputes,” (with Joseph S. Tracy), *Journal of Labor Economics*, 12, 180–209, 1994.
- “Promoting Honesty in Negotiation: An Exercise in Practical Ethics,” (with J. Gregory Dees) *Business Ethics Quarterly*, 3, 359-394, 1993.
- “Using Auction Theory to Inform Takeover Regulation,” (with Alan Schwartz) *Journal of Law, Economics, and Organization*, 7, 27–53, 1991.
- “Shrewd Bargaining on the Moral Frontier: Toward a Theory of Morality in Practice,” (with J. Gregory Dees) *Business Ethics Quarterly*, 1, 135-167, 1991.
- “Cartel Enforcement with Uncertainty about Costs,” (with Thomas R. Palfrey) *International Economic Review*, 31, 17–47, 1990.
- “Nonrandom Mixing Models of HIV Transmission,” (with Edward Kaplan, and A. David Paltiel) in *Mathematical and Statistical Approaches to AIDS Epidemiology*, edited by Carlos Castillo-Chávez, *Lecture Notes in Biomathematics Series*, Springer-Verlag, 218–239, 1989.
- “Sequential Bargaining Mechanisms,” in *Game-Theoretic Models of Bargaining*, Alvin Roth (ed.), Cambridge University Press, Chapter 8, 149–179, 1985.