

**ALEKSANDAR SAŠA PEKEČ**

The Fuqua School of Business

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**WORK EXPERIENCE:**

**The Fuqua School of Business, Duke University, Durham, NC**

**Associate Professor with tenure, Decision Sciences** (from 2005)

**Associate Professor, Decision Sciences** (2002-2005)

**Assistant Professor, Decision Sciences** (1998-2002)

**Research:** Design and analysis of choice, allocation and pricing mechanisms in complex competitive environments by combining methods from operations research (discrete optimization), computer science (algorithms and complexity) and economics (auction theory): multiple object auction design; combinatorial auctions; efficient methods for subset choice and bundle valuations; preference elicitation and information aggregation.

**Teaching:** *Statistical Models* (Cross-Continent MBA, Duke-Goethe Executive MBA), *Probability and Statistics* (Daytime MBA; Weekend Executive MBA), *GATE: Europe* (Daytime MBA).

**University of Aarhus, Aarhus, Denmark**

**Assistant Research Professor** (1996-1998)

**Research:** Research work in the *Center for Basic Research in Computer Science* (BRICS), Centre of the Danish National Research Foundation. Research work on the project *Algorithms and Complexity in Information Technology* (supported by the European Union).

**Teaching:** *Discrete Mathematics* (Ph.D. course), *Combinatorial Methods* (Ph.D. course), *Combinatorial Optimization Algorithms* (Ph.D. course).

**EDUCATION:**

**Ph.D. in Applied Mathematics** (1996)

**Rutgers University**, New Brunswick, NJ

Thesis title: Limitations on Conclusions from Combinatorial Optimization Models.

Thesis advisor: Dr. Fred S. Roberts

**B.S. in Mathematics** (1991)

**University of Zagreb**, Zagreb, Croatia

Major: Mathematics with Statistics and Computer Science

## PUBLICATIONS:

Harstad, R.M., and A. Pekeč (2008), "Relevance to Practice and Auction Theory: A Memorial Essay for Michael Rothkopf", *Interfaces*, 38, 367-380.

Pekeč, A., and I. Tsetlin (2008) "Revenue Ranking of Discriminatory and Uniform Auctions with an Unknown Number of Bidders", *Management Science*, 54, 1610-1623.

Mezzetti, C., A. Pekeč and I. Tsetlin (2008) "Sequential vs. Single-Round Uniform Price Auctions." *Games and Economic Behavior*, 62, 591-609.

Harstad, R.M., A. Pekeč and I. Tsetlin (2008), "Information Aggregation in Auctions with an Unknown Number of Bidders." *Games and Economic Behavior*, 62, 476-508.

Tsetlin, I., and A. Pekeč (2006), "On the Existence of the Symmetric Equilibrium in  $(k+1)$ -st Price Common Value Auctions", *Review of Economic Design*, 10, 63-71.

Pekeč, A., and M.H. Rothkopf (2006), "Noncomputational Approaches to Mitigating Computational Problems in Combinatorial Auctions." In P. Cramton, Y. Shoham, R. Steinberg (Eds.) *Combinatorial Auctions*, M.I.T. Press.

Mustafa, N., and A. Pekeč (2004), "Listen to Your Neighbors: How (Not) to Reach a Consensus." *SIAM Journal on Discrete Mathematics*, 17, 634-660.

Doignon, J.-P., A. Pekeč and M. Regenwetter (2004), "The Repeated Insertion Model for Rankings: Missing link between two subset choice models." *Psychometrika*, 69, 33-54.

Pekeč, A., and M.H. Rothkopf (2003), "Combinatorial Auction Design." *Management Science*, 49, pp. 1485-1503.

Fishburn, P.C., A. Pekeč and J.A. Reeds (2002), "Subset Comparisons for Additive Linear Orders", *Mathematics of Operations Research*, 27, pp.227-243.

Pekeč, A. (2001), "Meaningful and Meaningless Solutions for Cooperative N-person Games", *European Journal of Operational Research* 133/3, pp. 154-169.

Mustafa, N., and A. Pekeč (2001), "Majority Consensus and the Local Majority Rule", In Orejas, F., P. G. Spirakis and J. van Leeuwen (Eds.): *Automata, Languages and Programming, 28th International Colloquium, ICALP 2001, Crete, Greece, July 8-12, 2001, Proceedings*. Lecture Notes in Computer Science 2076 Springer, pp. 530-542. (Extended version available as BRICS Research Series, RS-00-08.)

Pekeč, A. and F.S. Roberts (2001), "The Role Assignment Model Nearly Fits Most Social Networks", *Mathematical Social Sciences* 41, pp.275-293.

Bermond, J.-C., J. Bond, C. Martin, A. Pekeč and F.S. Roberts (2000), "Optimal Orientations of Annular Networks", *Journal of Interconnection Networks* 1, pp. 21-46.

Rothkopf, M.H., A. Pekeč and R.M. Harstad (1998), "Computationally Manageable Combinatorial Auctions," *Management Science* 44, pp. 1131-1147.

Mahadev, N.V.R., A. Pekeč and F.S. Roberts (1998), "On the Meaningfulness of Optimal Solutions to Scheduling Problems: Can an Optimal Solution be Non-Optimal?" *Operations Research* 46/3S, S120-S134.

Mahadev, N.V.R., A. Pekeč and F.S. Roberts (1997), "Effects of Change of Scale on Optimality in a Scheduling Model with Priorities and Earliness/Tardiness Penalties", *Mathematical and Computer Modelling*, 25/11, pp. 9-22.

Pekeč, A. (1997), "Optimization under Ordinal Scales: When is a Greedy Solution Optimal?", *Mathematical Methods of Operations Research* 46, pp. 229-239.

Pekeč, A. (1996), "Winning Strategy for the Ramsey Graph Game." *Combinatorics, Probability & Computing* 5, pp. 267-276.

Pekeč, A. (1996), *Limitations on conclusions from combinatorial optimization models*, Ph.D. Thesis, Rutgers University.

### **MANUSCRIPTS UNDER REVIEW AND WORKING PAPERS:**

Baucells, M., and A. Pekeč, "Assembling Balanced Teams"

Fishburn, P.C., and A. Pekeč, "Approval Voting for Committees: Threshold Approaches"

Fishburn, P.C., and A. Pekeč, "Bundle Valuations"

Pekeč, A., "Preconditions for Information Aggregation in Prediction Markets"

Pekeč, A., "Optimal Choice and Aggregation in Presence of Ratio Scale Information"

Pekeč, A., "Subset Choice, Cooperative Games, and Approval Voting."

Pekeč, A., and M. Regenwetter, "Too Close to Call, On Various Counts"

Pekeč, A., and I. Tsetlin, "Modified English Auctions"

### **OTHER PUBLICATIONS AND TECH. REPORTS:**

Pekeč, A. (2007), "A Proposal to Improve Auction 73 Procedures", an official filing with the Federal Communications Commission, August 31, 2007.

Harstad R.M., A. Pekeč and M.H. Rothkopf (2002), "On Setting Minimum Bids and Calculating Minimum Bid Increments", an official filing with the Federal Communications Commission, February 26, 2002.

Harstad R.M., A. Pekeč and M.H. Rothkopf (2002), "Thorough Analysis of Package Bidding Procedures is Still Needed", an official filing with the Federal Communications Commission, February 19, 2002.

Harstad R.M., A. Pekeč and M.H. Rothkopf (2001), "Verizon is Right: Delay Auction No. 31", an official filing with the Federal Communications Commission, January 24, 2001.

Pekeč, A. (2000) "US Presidential Elections: Fixing the System."

Pekeč, A., and M.H. Rothkopf (2000), "Discussion of the Novel Auction Rules Should Not Be Limited to a Few Details", an official filing with the Federal Communications Commission, November 15, 2000.

Pekeč, A., and M.H. Rothkopf (2000), "Now There is Time for Serious Consideration of the Novel Auction Rules", an official filing with the Federal Communications Commission, August 1, 2000.

Pekeč, A., and M.H. Rothkopf (2000), "More on Making the FCC's First Combinatorial Auction Work Well", an official filing with the Federal Communications Commission, June 16, 2000.

Pekeč, A., and M.H. Rothkopf (2000), "Making the FCC's First Combinatorial Auction Work Well", an official filing with the Federal Communications Commission, June 7, 2000.

Pekeč, A. (1996), "Scalings in Linear Programming: Necessary and Sufficient Conditions for Invariance", technical report, BRICS Research Series RS-96-48.

Pekeč, A. (1996), "Hypergraph Optimization Problems: Why is the Objective Function Linear?", technical report, BRICS Research Series RS-96-50.

## **PROFESSIONAL ACTIVITIES:**

### Conference Organizer, Program Committee Member, etc.:

- 1<sup>st</sup> International Conference on Algorithmic Decision Theory, Venice, Italy, October 21-23, 2009.
- INFORMS JFIG Paper Competition, 2008.
- INFORMS Nicholson Prize Competition, 2006, 2007.
- *Polyhedral Combinatorics of Random Utility*, DIMACS, Piscataway, NJ, May 24-26, 2006.
- *Computational Issues in Auction Design*, DIMACS, Piscataway, NJ, October 7-8, 2004.
- *Computation in the Socio-Economic Sciences*. Three-year, multiple-workshop/conference series. DIMACS Piscataway, NJ, 2004-2007.
- *NSF/NBER/CEME Decentralization Conference*, The Fuqua School of Business, April 23-25 2004.
- *Triangle Discrete Math and Optimization Day*, The Fuqua School of Business, March 22, 2004.
- *Random Utility 2000*, The Fuqua School of Business, August 3-8, 2000.
- *BRICS Combinatorial Optimization Meeting*, Aarhus, Denmark, May 5-6, 1997.

### Associate Editor:

Special issue of *Decision Analysis* on Auctions, forthcoming, 2009.

Special issue of *Management Science* on Electronic Markets, *Management Science* 51(3), 2005.

### Referee:

*American Economic Review; Artificial Intelligence; Discrete Applied Mathematics; Discrete Mathematics; European Journal of Operational Research; Games and Economic Behavior; Information Technology and Management; Interfaces; International Journal of Game Theory; Journal of Combinatorics, Information & Systems Sciences; Journal of Economic Theory; Journal of Graph Theory; Journal of Heuristics; Journal of Mathematical Psychology; Manufacturing & Service Operations Management; Management Science; Mathematical Social Sciences; Networks; Nordic Journal of Computing; Perception & Psychophysics; Operations Research; SIAM Journal on Discrete Mathematics; Telecommunication Systems Journal.*

## **UNIVERSITY SERVICE:**

- Ph.D. program coordinator for the Decision Sciences Area at FSB (2006-present).
- Ph.D. thesis committee co-chair for Ilia Tsetlin (Graduated in 2003; now at INSEAD).
- Serving member of the FSB Faculty Technology Committee (2002-2005, 2006-2007).
- Member of the Duke University Academic Council (2000-2002, 2008-present).

## PRESENTATIONS:

- Algorithmic Decision Theory Workshop, Paris, France (Invited tutorial), 2008
- London Business School, London, UK, 2008
- INFORMS National Meeting, Washington, DC (Talks in invited sessions), 2008
- The Foundations and Applications of Risk, Utility and Decision Theory Conference: FUR XIII, Barcelona, Spain, 2008
- 4th Southeast European Telecom Arena, Zagreb, Croatia (Invited talk), 2008
- Decision Sciences Symposium and 38th European Mathematical Psychology Meeting, Luxembourg (Invited talk), 2007
- Microeconomic Theory Lunch Seminar, Department of Economics, Duke University, 2007
- Content and Media Management Conference, Zagreb, Croatia (Invited talk), 2007
- 3rd Southeast European Telecom Arena, Zagreb, Croatia (Invited talk), 2007
- INFORMS National Meeting, Pittsburgh, PA (Talk in an invited session), 2006
- Conference on Preference Modeling and Voting Theory, Paris, France (Invited talk), 2006
- Financial Times Deutschland Conference on Knowledge Economy, Berlin, Germany (Invited talk, invited panelist), 2006
- INSEAD, Singapore, 2006
- Southeast European Telecom Arena, Zagreb, Croatia, 2006
- INSEAD, Fontainebleau, France, 2005
- Computational Issues in Auction Design, DIMACS, Piscataway, NJ (panel moderator), 2004
- Atlantic Trade Annual Meeting, Brijuni, Croatia (Keynote Speaker), 2004
- Working Group on Modeling Social Responses to Bio-terrorism Involving Infectious Agents, DIMACS, Piscataway, NJ (Invited Panelist), 2003
- Management Arena, Zagreb, Croatia (Invited panelist, Invited talk), 2002
- INFORMS National Meeting, San Jose, CA (Talk in an invited session), 2002
- Electronic Market Design Conference, Dagstuhl, Germany (Invited talk), 2002
- University of Rome “La Sapienza”, Rome, Italy, 2002
- Annual meeting of the Public Choice Society and Economic Science Association, San Diego, CA, 2002
- National Airspace System Resource Allocation: Economics and Equity, Wye River Conference Center, MD (Panelist: “Public Actions: Background and Perspective from Other Industries”), 2002
- Institute for Mathematical Behavioral Sciences, University of California, Irvine (Colloquium speaker), 2001
- INFORMS National Meeting, Miami Beach, FL (Chair and organizer of an invited session “Auctions in Finance”), 2001
- FCC Combinatorial Bidding Conference, Wye River Conference Center, MD (Invited talk), 2001
- Workshop on Information and Communication Technology in Croatia - Policy and Economy: Issues and Initiatives (Invited talk), 2001
- Infonomics Workshop on Electronic Market Design, University of Maastricht, Maastricht, Netherlands (Invited talk), 2001
- First Croatian E-Business Forum, Zagreb, Croatia (Invited talk), 2001
- Sixth Croatian Financial Forum, Zagreb, Croatia (Invited round table panelist: “The Government's Economic Policy – Are Croatian Entrepreneurs Entrepreneurial?”), 2001
- INFORMS National Meeting, San Antonio, TX (Talk in an invited session), 2000

- Random Utility 2000 Conference, Durham, NC, 2000
- OSDA 2000 Conference, Brussels, Belgium, 2000
- Center for Basic Research in Computer Science, University of Aarhus, 2000
- AMS National Meeting, Washington, D.C. (Talk in an invited session), 2000
- Department of Computer Science, Duke University, 1999
- Combinatorial Optimization 98, Brussels, Belgium (Talk in an invited session), 1998
- Fuqua School of Business, Duke University, 1998
- Danish Graph Theory Days, Odense, Denmark (Invited talk), 1998
- 10th EURO Combinatorial Optimization Meeting, Puerto de la Cruz, Spain , 1997
- Department of Computer Science, University of Copenhagen, 1997
- 28th SE Conf. on Combinatorics, Graphs, and Computing, Boca Raton, FL, 1997
- Department of Mathematics, Massachusetts Institute of Technology, 1997
- Department of Industrial Engineering and Operations Research, Columbia University, 1996
- SIAM Student Conference, Clemson, SC, 1996
- 27th SE Conf. on Combinatorics, Graphs, and Computing, Baton Rouge, LA, 1996
- Department of Computer Science, University of Aarhus, 1995
- INFORMS National Meeting, Los Angeles, CA, 1995
- Graduate School of Industrial Administration, Carnegie Mellon University, 1995
- 26th SE Conf. on Combinatorics, Graphs, and Computing, Boca Raton, FL, 1995
- Department of Mathematics, University of Colorado, 1995
- Croatian Operations Research Society, Zagreb, Croatia, 1995
- Harriman School of Management, SUNY at Stony Brook, 1994
- ORSA/TIMS Joint National Meeting, Detroit, MI, 1994
- Department of Mathematics, Technical University Graz, 1994
- 2nd Int. Colloquium on Graphs and Optimization, Loèche-les-Bains, Switzerland, 1994