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|  <p><b>THE UNIVERSITY<br/>OF AUCKLAND</b><br/>NEW ZEALAND<br/>Te Whare Wānanga o Tāmaki Makaurau</p> | <p><b>University of Auckland<br/>Standard<br/>ACADEMIC CV</b></p> |
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**NAME:** Arkadii Slinko  
**CURRENT POSITION:** Associate Professor  
**DEPARTMENT:** Mathematics  
**FACULTY:** Science

#### EDUCATIONAL QUALIFICATIONS:

- Ph.D., Sobolev Institute of Mathematics, Novosibirsk, 1973
- MSc., Novosibirsk State University, 1970

#### PREVIOUS APPOINTMENTS:

- 2009 – present: Associate Professor, The University of Auckland.
- 1995–2008: Senior Lecturer, The University of Auckland.
- 1992–1994: Lecturer, The University of Auckland.
- 1989–1992: Associate Professor, Lomonosov Moscow State University.
- 1979–1992: Senior Researcher, Institute for System Studies of Academy of Sciences USSR (Moscow)
- 1977–1979: Vice Chairman, Department of Mathematics, Novosibirsk State University.
- 1974–1979: Assistant and Associate Professor, Dept of Mathematics, Novosibirsk State University.

#### SELECTED VISITING APPOINTMENTS:

- 2010 August - October. Visiting Professor. Nanyang Technological University. Singapore.
- 2010 November. Visiting Professor. University of Tsukuba. Japan.
- 2006 Visiting Researcher. The Centre for Interuniversity Research in Qualitative Economics (CIREQ) and Department of Economics of The University of Montreal, autumn semester.
- 2006 July, 2003 July: Visiting Researcher, Central Institute for Mathematics and Economics (Moscow).
- 2003 June: Visiting Professor. CERMSEM. Université Paris 1 Panthéon-Sorbonne.

#### SIGNIFICANT DISTINCTIONS / AWARDS

- 2011: Assessor for The Australian Research Council (ARC).
- 2010: Inaugural Director of the Centre for Mathematics in Social Sciences.
- 2007: Faculty of Science Distinguished Teaching Excellency Award.
- 2006-present: Member of The Editorial Board. Journal of Generalized Lie Theory and Applications.
- 2003-2005 Independent expert. The European Commission DG Research.
- 2000 Medal of the Latvian Mathematical Society.
- 1990 D.Sc., Sobolev Institute of Mathematics, Novosibirsk.

**TEACHING (last five years):** A range of courses in Algebra, Combinatorics, Number Theory and Cryptography. I developed a new course MATHS 328 "Algebra and Applications," which is now a core course at stage 3. It features applications to Cryptography, Secret Sharing and Fingerprinting. In 2005 I served as the chair of the review committee of undergraduate courses in Algebra and Discrete Mathematics. In 2008 I served on the review committee of graduate courses in the Department.

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## RESEARCH SPECIALITIES / CAREER:

**Summary Statement:** My primary research has been in the area of Computational Social Choice and Computational Politics. These days more and more, economists and political scientists are coming to recognize that all forms of economic and political activity entail computation. Herbert Simon who introduced the notion of bounded rationality was one of the first to recognise this. Given the way mathematics has emerged as the preferred language of economic theory, it is perhaps surprising that this aspect of economics has only recently begun to be treated formally. The late emergence of the computational theme in economics may be a consequence of the fact that the notion of computational limits is itself relatively new in mathematics. Computational Social Choice and Computational Politics are now fast developing interdisciplinary fields and all major conferences on Artificial Intelligence have sections devoted to Social Choice. I was one of the first who started publishing in this field. One of the main lines of my research in Computational Social Choice was to apply the parameterized complexity analysis to problems in Social Choice in the presence of a small parameter. Indeed, since most problems in the situation of voting have one or more small parameters I felt that traditional complexity analysis must be complemented by the parameterized complexity analysis.

My papers on simple games are concerned - one way or another - with complexity of checking if a simple game can be represented as a weighted majority game or roughly weighted majority game.

### Invited Conference Addresses (last five years):

- 2012: Dagstuhl Seminar 12101 "Computation and Incentives in Social Choice." 4-9 March 2012
- 2011: The Third International Workshop on Logic, Rationality and Interaction (LORI-III), Guangzhou, P.R. China, October 10-13.
- 2011: Conference on Game Theory and Applications, National Cheng Kung University, Tainan, Taiwan, September 29-30.
- 2010: Dagstuhl Seminar 10101 'Computational Foundations of Social Choice', Dagstuhl, Germany, March, 7-12.
- 2008: "Logic and Economics: Players with Limited Cognitive and Inferential Abilities and Mental-Behavioral Consequences." University of Tsukuba (Japan) August 25-27.
- 2008: The Tenth International Symposium on Artificial Intelligence and Mathematics (ISAIM 2008) Fort Lauderdale, Florida, January 2-4.
- 2008: 2nd International Workshop on Computational Social Choice (COMSOC-2008). Liverpool, September, 2-5.
- 2007: Dagstuhl Seminar 07431 'Computational Issues in Social Choice', Dagstuhl, Germany, October, 21-26.

### Selected Research Grants / Funding (last five years):

- 2010: \$120,000 AUD - ARC Discovery grant (jointly with Estivil-Castro, Fellows and Rosamond).
- 2010: \$18,500 - Cross Faculty Research Fund (application on behalf of the Centre For Mathematics in Social Sciences))
- 2010: \$5000 - ISAT Bilateral Research Activities Programme With Spain : grant in support for a visit of Prof. Josep Freixas.
- 2010: \$8,500 - Faculty of Science Research Development Grant.
- 2009: \$17,695 - Faculty of Science Research Development Grant.
- 2008: \$11,500 AUD – ARC funded Economic Design Network: grant for organising 5th Pan-Pacific Conference in Game Theory (Auckland, November 2008).
- 2007: \$8,000 - Faculty of Science Research Development Grant.
- 2007: \$8,504 - Faculty of Business & Economics Research Development Grant (with Matthew Ryan).
- 2006: \$5,000 AUD – Economic Design Network: grant in support for a visit of Prof. M. Kaneko (University of Tsukuba, Japan).

**Research Publications summary:** 5 books, 80 refereed research papers, 150 publications in total. Below are my refereed research publications for the last five years.

1. Betzler, Nadja, Slinko, Arkadii and Uhlmann, Johannes, On the Computation of Fully Proportional Representation (November, 01 2011). Submitted. Available at SSRN: <http://ssrn.com/abstract=1952497>
2. Clone Structures in Voters Preferences (with P. Faliszewski and E. Elkind), accepted to The Thirteenth ACM Conference on Electronic Commerce (EC'12). June 4-8, 2012, in Valencia, Spain.
3. Three Hierarchies of Simple Games Parameterized by "Resource" Parameters (with T. Gvozdeva and L. A. Hemaspaandra). *International Journal of Game Theory*, 2011, DOI 10.1007/s00182-011-0308-4.
4. Cloning in Elections (with P. Faliszewski and E. Elkind). *JAIR*, 42 (2011), pp. 529-573.
5. Rationalizing Condorcet Rules via Adding and Deleting Voters (with P. Faliszewski and E. Elkind), *Social Choice and Welfare*, Online first, DOI: 10.1007/s00355-011-0555-0.
6. Homogeneity and Monotonicity of Distance-Rationalizable Voting Rules, (with E. Elkind, P. Faliszewski), *Proc. of 10th Int. Conf. on Autonomous Agents and Multiagent Systems (AAMAS 2011)*, Tumer, Yolum, Sonenberg and Stone (eds.), May, 26, 2011, Taipei, Taiwan, pp. 821-828.
7. Weighted and Roughly Weighted Simple Games (with Tatiana Gvozdeva), *Mathematical Social Sciences* 61 (2011) 20–30.
8. Proportional Representation and Strategic Voters (with Shaun White), *Journal of Theoretical Politics*, 2010, 22(3): 301–332.
9. On the role of distances in defining voting rules. (with E. Elkind and P. Faliszewski) Wiebe van der Hoek, Gal A. Kaminka, Yves Lespérance, Michael Luck, and Sandip Sen, eds. *AAMAS 2010: Proceedings of the Ninth International Conference on Autonomous Agents and Multi-Agent Systems*. IFAAMAS: Internatioal Foundation for Autonomous Agents and Multiagent Systems, Toronto, Canada, May 10–14, pp. 375–382. 2010.
10. Good Rationalizations of Voting Rules (with E. Elkind and P. Faliszewski) *Twenty-Fourth Conference on Artificial Intelligence (AAAI-10)*, Maria Fox and David Poole(eds.), *Proceedings of the Twenty-Fourth AAAI Conference on Artificial Intelligence*, Atlanta, Georgia, USA, 11-15 July, 2010, p.774–779.
11. Three Hierarchies of Simple Games Parameterized by "Resource" Parameters (with T. Gvozdeva and L. A. Hemaspaandra). In: *Proceedings of the Third International Workshop on Computational Social Choice (COMSOC-2010)*. Eds. V. Conitzer and Joerg Rothe. Dusseldorf, Germany, 13–16 September, 2010, p. 259–270.
12. Distance Rationalization of Voting Rules (with E. Elkind and P. Faliszewski). In: *Proceedings of the Third International Workshop on Computational Social Choice (COMSOC-2010)*. Eds. V. Conitzer and Joerg Rothe. Dusseldorf, Germany, 13–16 September, 2010, p. 379–390.
13. Additive Representability of Finite Measurement Structures. In: "The Mathematics of Preference, Choice, and Order: Essays in Honor of Peter C. Fishburn". Eds. SJ Brams, WV Gehrlein and FS Roberts. Springer, 2009.
14. Orders on Subsets Rationalised by Abstract Convex Geometries (with Matthew Ryan and Walter Bossert), *Order*, 2009, 26(3): 237– 244.
15. Axioms for a Class of Algorithms of Sequential Decision Making (with M. Agastya) In: F. Rossi and A. Tsoukis (Eds.): "Algorithmic Decision Theory." *Proceedings of the ADT 2009*, LNAI 5783, pp. 353–364. Springer Heidelberg (2009).
16. On distance rationalizability of some voting rules (with P. Faliszewski and E. Elkind) In: *Proceedings of the 12th Conference on Theoretical Aspects of Rationality and Knowledge*. pp 108–117. California, 2009
17. Swap bribery (with P. Faliszewski and E. Elkind) In: M. Mavronicolas and V.G. Papadopoulou (Eds.): "Algorithmic Game Theory." *Proceedings of the Second International Symposium, SAGT 2009*, LNAI 5814, pp. 299–310. Springer Heidelberg (2009).
18. Approximability of Dodgson's rule (with John McCabe-Dansted and Geoffrey Pritchard), *Social Choice and Welfare*, 2008, 31(2): 311–330. Springer online (2007) DOI: 10.1007/s00355-007-0282-8.
19. Self-Selective Social Choice Functions (with S. Koray), *Social Choice and Welfare*, 2008, 31(1): 129–149.

20. Non-dictatorial Social Choice Rules Are Safely Manipulable (with Shaun White). Proceedings of the 2nd International Workshop on Computational Social Choice (COMSOC–2008). Eds. Ulle Endriss & Paul W. Goldberg. University of Liverpool, 2008. pp. 403–414.
21. Ranking Committees, Income Streams or Multisets (with M. Sertel), *Economic Theory*, 2007, 30(2): 265–287.
22. Comparative Probability Orders and the Flip Relation (with M. Conder and D. Searles), Proceedings of The 5th International Symposium on Imprecise Probability: Theories and Applications (ISIPTA 07), Eds. G. de Cooman, J. Veinanova, M.Zaffalon. Prague, Czech Republic, 2007, 67–76.
23. On Complexity of Lobbying in Multiple Referenda (with Robin Christian, Mike Fellows and Fran Rosamond), *Review of Economic Design*, 2007, 11(3): 217–224.
24. Flippable Pairs and Subset Comparisons in Comparative Probability Orderings (with Robin Christian and Marston Conder), *Order*, 2007, 24(3): 193–213.
25. Orders on Multisets and Discrete Cones (with Marston Conder and Simon Marshall), *Order*, 24(4): 277–296.
26. How the Size of a Coalition Affects its Chances to Influence an Election, *Social Choice and Welfare*, 2006, 26(1): 143–153.
27. Exploratory Analysis of Similarities between Common Social Choice Rules (with J. McCabe-Dansted), *Decision and Negotiation*, 2006, 15(1), 77–107.
28. On the Average Minimum Size of Manipulating Coalition (with G. Pritchard), *Social Choice and Welfare*, 2006, 27(2), 263–277.
29. Relative Uncertainty Aversion and Additively Representable Set Rankings (with W. Bossert), *International Journal of Economic Theory*, 2006, 2: 105–122.