Fedor Sandomirskiy

Contact Information

California Institute of Technology
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Google Scholar profile

Research Interests

microeconomic theory, information economics, mechanism design, fair division, algorithmic economics, optimal transportation and majorization methods

Academic Positions

California Institute of Technology, USA 2021-2023
— postdoc at Division of the Humanities and Social Sciences

Technion, Israel 2018-2021
— postdoc at Game Theory group (Dept. of Industrial Engineering & Management)
— member of Mechanism Design for Data Science group

National Research University Higher School of Economics, Russia
— senior researcher (remote since 2018) at International Lab. of Game Theory 2015-2022
— head of the laboratory 2017-2018

St.Petersburg State University, Russia 2012-2015
— researcher at Chebyshev Laboratory (Dept. of Mathematics)

Education

Central Economics and Mathematics Institute, Russian Academy of Sciences
— Ph.D. (Candidate of Sciences) in Mathematical Methods of Economics 2014

St.Petersburg State University
— M.Sc. in Mathematical Physics 2011
— B.Sc. in Mathematical Physics 2009

Working Papers

"Private private information" with Kevin He and Omer Tamuz

"Persuasion as transportation" with Itai Arieli and Yakov Babichenko

"Beckmann's approach to multi-item multi-bidder auctions" with Alexander V. Kolesnikov, Aleh Tsyvinski, and Alexander P. Zimin

"Bayesian persuasion with mediators" with Itai Arieli and Yakov Babichenko

"Efficiency in random resource allocation and social choice" with Federico Echenique, Joseph Root

"On social networks that support learning" with Itai Arieli and Rann Smorodinsky
R&R in *Journal of Economic Theory*

"Algorithms for competitive division of chores" with Simina Brânzei
R&R in *Mathematics of Operations Research*

Main Publications

"Feasible joint posterior beliefs" with Itai Arieli, Yakov Babichenko, and Omer Tamuz
Journal of Political Economy, 2021, 129(9),
EC'20 best paper award

"Competitive division of a mixed manna" with Anna Bogomolnaia, Herve Moulin, Elena Yanovskaya
Econometrica, 2017, 85(6):1847-1871

"A simple online fair division problem" with Anna Bogomolnaia and Herve Moulin
Management Science, 2022, 68(2):1174-1194

"Fair division with minimal sharing" with with Erel Segal-Halevi
Operations Research, 2022, 70(3):1293-1952

Other Journal Publications

"Feasible joint posterior beliefs through examples" with Itai Arieli, Yakov Babichenko, Omer Tamuz
SIGecom Exchanges, 2021

"Representative Committees of Peers" with Reshef Meir and Moshe Tennenholtz
Journal of Artificial Intelligence Research, 2021, 71:401-429

"A polynomial-time algorithm for computing a Pareto optimal and almost proportional allocation" with Haris Aziz and Herve Moulin
Operations Research Letters, 2020, 48(5):573-578

"Dividing bads under additive utilities" with Anna Bogomolnaia, Herve Moulin, Elena Yanovskaya
Social Choice and Welfare, 2019, 52(3):395-417

"On repeated zero-sum games with incomplete information and asymptotically bounded values"
Dynamic Games and Applications, 2018, 8(1):180-198

"Repeated games of incomplete information with large sets of states"
International Journal of Game Theory, 2014, 43(4):767-789

"An exact renormalization formula for the Maryland model" with Alexander Fedotov
Communications in Mathematical Physics, 2015, 334(2):1083-1099

Refereed Conference Publications

"Private private information" with Kevin He and Omer Tamuz
ACM Conference on Economics and Computation (EC'22), 2022 (extended abstract)

"Persuasion as transportation" with Itai Arieli and Yakov Babichenko
ACM Conference on Economics and Computation (EC'22), 2022 (extended abstract)

"Protecting the protected group: circumventing harmful fairness" with Omer Ben-Porat and Moshe Tennenholtz
The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-21), 2021

"On social networks that support learning" with Itai Arieli and Rann Smorodinsky,
ACM Conference on Economics and Computation (EC'21), 2021 (extended abstract)

Work in Progress

"Geometry of consumer preference aggregation" with Philip Ushchev

"From information design to mechanism design and back"

Teaching Experience

Instructor

— "Algorithmic Economics" (CS/SS/EC149), Caltech 2022
developed from scratch intro to economic design for CS/math grads & undergrads

— "Games with incomplete information and information design," Technion 2020
co-taught with Rann Smorodinsky

— "Introduction to mechanism design," Higher School of Economics 2017
co-taught with Alexander Nesterov

— Probability, Calculus 1, Algebra 1, St.Petersburg State University 2013-2014

Supervisor

— Egor Kravchenko, St.Petersburg State University 2022
undergrad project "Belief covariance: tight bounds"

— Alisa Maricheva, Higher School of Economics
M.Sc. thesis "Fair division of indivisible goods with or without money transfers" 2018

— Yulia Ibragimova, Higher School of Economics
M.Sc. thesis "Online procurement auctions: corruption detection" 2018
B.Sc. thesis "Competitive mechanisms for fair division of indivisible goods" 2016

Service

Referee

— Journals: JET, TE, GEB, AEJ:micro, ET, SCW, MOR, EJOR

— Grants: German-Israeli Foundation, Israel Science Foundation

Program committee member

— ACM Conference on Economics and Computation (EC) 2019-2022

— The 17th Conference on Web and Internet Economics (WINE) 2021

— Russian Game Theory Olympiad 2018-2021

Organizer

— Victoria Kreps memorial prize for young game theorists and theoretical economists 2021
— conference "New Directions in Social Choice in St.Petersburg," HSE
— conference "Economic Design and Algorithms in St.Petersburg," HSE, 2019
— school "Game Theory: Applications, Networks, Emotions," HSE
— conference "Algorithmic aspects of Social Choice and Auctions," HSE 2018
— conference "Advances in Fair Division," HSE 2017
— school "Fair Division: Between Economics, Mathematics and Computer Science," HSE
— conference "Game Theory and Mechanism Design," HSE 2016
— school "Computational Social Choice and Fair Division," HSE
— research seminar in economic theory, HSE 2015-2018

Other service

— Mentor, "Mentorship workshop," ACM Conference on Economics and Computation (EC) 2022
— Committee member, Ph.D. defense of Zijian Tao, Caltech
— I gave multiple popular lectures on Game Theory and Economic Design for undergrads and gifted high-school students 2015-2018

Grants & Awards

— RFBR 19-01-00762 "Cardinal mechanisms for resource allocation" 2019-2021
— RFBR 16-01-00269 "Asymptotic problems of game theory" 2016-2018
— RFBR 13-01-00462 "Variability of beliefs in multi-stage interactions" 2013-2015
— B.L. Ovsievich prize in economics 2013
— V. Deych prize for B.Sc. thesis in mathematical physics 2009

Invited Seminars

— Bonn, Northwestern Econ., CMU BS, UCSD Econ., Edinburgh Econ., HUJI Econ-CS, Technion IE&M, Purdue CS 2022
— PSE, Joint Hong Kong Theory Seminar, Caltech Econ., Caltech CMS, Caltech CMI, HSE Econ. 2021
— Cornell Econ., TAU & HUJI (joint online seminar), HSE Math, Technion & Bar-Ilan (joint online seminar) 2020
— Stanford MS&E, Caltech Econ., Bar-Ilan Econ., HUJI Econ-CS, Technion IE&M, TAU CS, TAU Math 2019
— Rochester Econ., Technion IE&M 2018
— HUJI Econ-CS 2017
— HUJI Econ 2013

Conferences

— ASSA Annual meeting, 2023
— EC'22 (2 papers), INFORMS Annual Meeting, Stony Brook Game Theory, INFORMS Workshop on Market Design 2022
— EC'21, LA Theory workshop 2021
— EC'20 (best paper award), CMID20, Dynamics and Information Workshop TAU 2020
— "De Aequa Divisione" at LUISS (invited talk and tutorial) 2019
— 22nd CTN Workshop, MATCH UP, "Imperfect Markets" at NES (invited talk and tutorial) 2017
— Congress of the GT Society, COMSOC 2016 2016
— MAGTA 2014
— 5th Israeli GT conference 2013
— Games and Strategy in Paris 2012

References

Omer Tamuz (host at Caltech)
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Dept. of Economics, UC Berkley
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