

Dr Jonathan Ben-Artzi

RESEARCH AREAS	Spectral analysis, Ergodic theory, Analysis of Nonlinear PDEs, Kinetic theory, Computational complexity	
EMPLOYMENT	Cardiff University , Cardiff, UK	Since September 2016
	Senior Lecturer (Associate Professor), <i>School of Mathematics</i> EPSRC Early Career Fellow, 2016-2021	
	Durham University , Durham, UK	July-September 2016
	Lecturer (Tenured Assistant Professor), <i>Department of Mathematical Sciences</i>	
	Imperial College London , London, UK	2014-2017
	Junior Research Fellow, <i>Department of Mathematics</i> (resigned 2016)	
	University of Cambridge , Cambridge, UK	2011-2014
	Research Associate jointly at: <i>Cambridge Centre for Analysis</i> <i>Department of Applied Mathematics and Theoretical Physics</i> Supernumerary Fellow, <i>Pembroke College</i>	
QUALIFICATIONS	Brown University , Providence, Rhode Island, USA	
	Ph.D., Mathematics	May 2011
	Advisor: Walter A. Strauss	
	M.Sc., Applied Mathematics	May 2009
	M.Sc., Mathematics	May 2008
	Teaching Certificate	May 2008
	Hebrew University of Jerusalem , Jerusalem, Israel	
	B.Sc., Mathematics-Physics (dual degree)	June 2006
FELLOWSHIPS, GRANTS & AWARDS	Marie Skłodowska-Curie Fellowship: €195,455 (ref. 790623)	2018-2020
	<i>European Commission</i> (role: supervisor of Dr Junyong Zhang)	
	EPSRC Early Career Fellowship: £977,978 (ref. EP/N020154/1)	2016-2021
	<i>Engineering and Physical Sciences Research Council</i>	
	SCoRE Cymru: £600 for visit of Dr Junyong Zhang (ref. SC17003)	April 2017
	<i>Welsh European Funding Office</i>	
	Conference funding for the conference “ <i>The Cauchy Problem in Kinetic Theory: Recent Progress in Collisionless Models</i> ”, Imperial College, London, September 2015:	
	□ LMS Conference Grant (Scheme 1): £7,000 (ref. 11443)	March 2015
	<i>London Mathematical Society</i>	
	□ EPSRC Platform Grant: £10,000 (ref. W031JB)	February 2015
	<i>Department of Mathematics, Imperial College London</i>	
	Junior Research Fellowship: £175,000	2014-2017
	Imperial College London	

Supernumerary Fellowship Pembroke College, Cambridge	2011-2013
Outstanding Teaching Award Department of Mathematics, Brown University	May 2011
Young Researcher Travel Award The Seventh IMACS Conference	April 2011
Coline M. Makepeace Fellowship Graduate School, Brown University	2006-2007

PUBLICATIONS
& SUBMITTED
PAPERS

11. Can everything be computed? - On the Solvability Complexity Index and Towers of Algorithms (with A. C. Hansen, O. Nevanlinna and M. Seidel)
Submitted, arXiv:1508.03280, 79 pages
10. The Solvability Complexity Index - Computer Science and Logic Meet Scientific Computing (with A. C. Hansen, O. Nevanlinna and M. Seidel)
Preprint, https://jbenartzi.github.io/Files/SCI_STOC_Final.pdf, 15 pages
9. Arbitrarily large solutions of the Vlasov-Poisson system
(with S. Calogero and S. Pankavich)
Submitted, arXiv:1708.02307, 19 pages
8. Instabilities of the relativistic Vlasov-Maxwell system on unbounded domains
(with T. Holding)
SIAM J. Math. Anal., **49**, 4024-4063 (2017)
7. Moment bounds on the corrector of stochastic homogenization of non-symmetric elliptic finite difference equations (with D. Marahrens and S. Neukamm)
Commun. PDE **42**(2), 179-234 (2017)
6. Approximations of strongly continuous families of unbounded operators
(with T. Holding)
Commun. Math. Phys. **345**(2), 615-630 (2016)
5. Instabilities in kinetic theory and their relationship to the ergodic theorem
Contemp. Math. **653**, 25-40 (2015)
4. New barriers in complexity theory: On The Solvability Complexity Index and Towers of Algorithms (with A. C. Hansen, O. Nevanlinna and M. Seidel)
C. R. Acad. Sci. **353**, 931-936 (2015)
3. On the spectrum of shear flows and uniform ergodic theorems
J. Funct. Anal. **267**, 299-322 (2014)
2. Instability of nonsymmetric nonmonotone equilibria of the Vlasov-Maxwell system
J. Math. Phys. **52**, 123703, pp. 1-21 (2011)
1. Instability of nonmonotone magnetic equilibria of the relativistic Vlasov-Maxwell system
Nonlinearity **24**, 3353-3389 (2011)

INVITED
CONFERENCE
TALKS

South-West Network in Generalised Solutions for Nonlinear PDEs Cardiff University, Cardiff, UK	September 2017
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Montréal Analysis Seminar McGill University, Montréal, Canada	April 2017
Workshop on Hilbert's Sixth Problem University of Leicester, Leicester, UK	May 2016
London Analysis Seminar University College London, London, UK	November 2015
Bath-WIMCS Analysis Day Cardiff University, Cardiff, UK	September 2015
BIRS-CMO Workshop: Kinetic and Related Equations Oaxaca, Mexico	July 2015
Complex Analysis & Dynamical Systems VII Nahariya, Israel	May 2015
Microlocal Day 5 Imperial College London, London, UK	January 2015
The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications: Special Session on Kinetic Models Madrid, Spain	July 2014
Mathematical Topics in Kinetic Theory University of Cambridge, Cambridge, UK	June 2013
Complex Analysis & Dynamical Systems VI Nahariya, Israel	May 2013
Probabilistic Methods in Kinetic Theory CIRM, Luminy, France	July 2011
The Seventh IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory University of Georgia, Athens, GA, USA	April 2011
Conference Organiser: "The Cauchy Problem in Kinetic Theory: Recent Progress in Collisionless Models" Imperial College London	September 2015
<i>Served as the main organiser of an international conference of over 25 invited speakers from around the world, and a total of 50 participants. Obtained funding (see above), set up a website (http://wwwf.imperial.ac.uk/~jbenartz/conference), produced a poster (available on the website) and handled all other administrative aspects.</i>	
Co-organiser , Analysis Seminar, Imperial College London	2015-2016
Postdoc Rep , Department of Mathematics, Imperial College London	2014-2015
<i>Responsible for representing postdocs of the mathematics department to the College, and organising career development and social events.</i>	
Local Organiser: "Mathematical Topics in Kinetic Theory" University of Cambridge	June 2013
Organiser , PDE Seminar, University of Cambridge	2011-2014

SERVICE

Grant Refereeing: Czech Science Foundation, UK Engineering and Physical Sciences Research Council, Research Grants Council of Hong Kong, Agence Nationale de la Recherche (France)

Journal Refereeing: Discrete and Continuous Dynamical Systems - Series A, Kinetic and Related Models, Rocky Mountain Journal of Mathematics, Journal of Functional Analysis, SIAM Journal on Mathematical Analysis, Communications in Partial Differential Equations, Communications in Mathematical Physics, Advances in Mathematics, Journal of Differential Equations, Journal of Computational and Applied Mathematics, Proceedings of the London Mathematical Society, Journal of Ocean Engineering and Marine Energy

Reviewer, Mathematical Reviews

2012-present

POSTDOC
MENTORING

Junyong Zhang, 2018-2021. Junyong received his PhD in 2011 under the supervision of Prof. Changxing Miao at the Institute of Applied Physics and Computational Mathematics in Beijing. He is interested in dispersive equations and holds a permanent position at the Beijing Institute of Technology.

Baptiste Morisse, 2017-2020. Baptiste received his PhD in 2017 under the supervision of Dr Benjamin Texier at Paris 7. In his thesis he studied regularity theory for first-order quasilinear operators.

STUDENT
SUPERVISION

Imperial College London, London, UK

2014-2016

Doctoral

□ Thomas Holding, 2012-2016

Served as a junior doctoral supervisor and coauthored papers [6] and [9] above. Thomas went on to a postdoctoral position with Prof. Martin Hairer (Imperial).

Masters and Undergraduate

□ Maria del Valle Varo: *"Hilbert's Sixth Problem: From Micro to Macroscopic Descriptions"*, Summer 2016

□ Paul Ramond: *"Landau Damping: Physics vs Mathematics"*, 2015-2016

□ Wei Yu: *"Infinite-dimensional spaces, the spectral theorem and the ergodic theorem"*, Summer 2015

□ Charafeddine Mouzouni: *"Topics in existence, uniqueness and stability of solutions to Vlasov systems in Kinetic Theory"*, Spring 2015

University of Cambridge, Cambridge, UK

2011-2014

Masters

□ Zhuo Min Lim: *"Jeans' Theorem in Kinetic Theory"*, 2013-2014

□ Thomas Holding: *"Instability of the Vlasov-Maxwell system on unbounded domains"*, 2012-2013

□ Luca Calatroni: *"Linear stability and instability of plasmas"*, 2011-2012

TEACHING

Imperial College London, London, UK

2014-2016

Postgraduate Teaching

□ *Dispersive Equations* (taught jointly with Dr Arick Shao), Autumn 2015

Course taught via video conferencing at the *Taught Course Centre*, a joint postgraduate teaching centre between Bath, Bristol, Imperial College, Oxford and Warwick.

University of Cambridge, Cambridge, UK

2011-2014

Postgraduate Teaching

- Teaching Assistant for Doctoral course *Kinetic Theory*, Autumn 2011
- Supervision of Doctoral PDE course project "*Incompressible flows and the Beale-Kato-Majda criterion*", 2011-2012

Undergraduate Course Supervisions

- *Methods*, Autumn 2011 & 2012
- *Vectors and Matrices*, Autumn 2012
- *Vector Calculus*, Spring 2012 & 2013
- *Numerical Analysis*, Spring 2013

Brown University, Providence, Rhode Island, USA

2006-2011

Undergraduate Teaching

- *Multivariable Calculus* (MA 0180), Autumn 2009 & Autumn 2010
- *Analytic Geometry and Calculus* (MA 0060), Spring 2009
- *Honors Multivariable Calculus* (MA 0350), Autumn 2008

Sheridan Center Teaching Certificate, Completed May 2008

SEMINAR TALKS

2017: McGill University, Princeton University

2015-2016: Cardiff University, Hebrew University of Jerusalem, Imperial College London, Université Aix-Marseille, University of Bath, University of Crete, University of Glasgow, University of Oxford, University of Reading, University of Surrey, University of Sussex, University of Warwick

2010-2014: Brown University, Columbia University, Imperial College London, Max Planck Institute Leipzig, Technion-Israel Institute of Technology, Université Paris 13, University of Cambridge, University of Oxford, University of Warwick

ACADEMIC VISITS

Max Planck Institute, Leipzig, Germany: March 2014 (one week), June 2013 (one week), April 2013 (one week), December 2012 (two weeks), April 2012 (one week), February 2012 (one week), January 2012 (one week), December 2011 (one week)

Université Paris 13, Paris, France: November 2012 (one week)

Brown University, Providence, RI, USA: April 2017 (one week), March 2012 (one week)

PROFESSIONAL
ORGANISATIONS

London Mathematical Society, member

2014-present