

Mahir Hadžić

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Born August 1982

Nationality Bosnia and Herzegovina

Employment

- Lecturer in Analysis, King's College London, 2013 –
- C.L.E. Moore Instructor, MIT, 2010 – 2013
- Postdoc, University of Zurich, 2010 – 2011

Education Brown University, Ph.D, 2010 (thesis advisor: Prof. Yan Guo)
University of Vienna, Mag. rer. nat, 2005 (mit Auszeichnung)

Honors and Awards EPSRC First Grant, 2016 - 2017
NSF Grant: DMS-1211517
Silver medal at the International Mathematics Olympiad 2001, bronze medals at the IMO 2000 and IMO 1999.

Research Interests nonlinear PDE
free boundary problems, kinetic theory, mathematical fluid dynamics, general relativity.

Organization Organizer of a conference on Nonlinear Evolutionary PDE at King's College London (September 2017)
Organizer of the International Conference: The Cauchy Problem in Kinetic Theory - Recent Progress in Collisionless Models, Imperial College London, September 2015
Organizer of the Paris-London Analysis Seminar (Scheme 3 Grant holder, awarded by the London Mathematical Society)

Publications In reverse chronological order:

1. (with Juhi Jang) *Nonlinear stability of expanding star solutions in the radially-symmetric mass-critical Euler-Poisson system*, available online at <http://arxiv.org/abs/1605.08083>
2. (with Steve Shkoller and Gustavo Navarro) *Local well-posedness and Global stability of the Two-Phase Stefan problem*. available online at <http://arxiv.org/abs/1607.00681>
3. (with Steve Shkoller and Jared Speck) *A priori estimates for solutions to the relativistic Euler equations with a moving vacuum boundary*, available online at <http://arxiv.org/abs/1511.07467>
4. (with Pierre Raphaël) *On melting and freezing for the 2d radial Stefan problem*, available online at <http://arxiv.org/abs/1508.02920>
5. (with Steve Shkoller) *Global stability and decay for the classical Stefan problem for general boundary shapes*, Phil. Trans. Royal Soc. A, 373, (2015) 2050.
6. (with Gerhard Rein) *On the small redshift limit of steady states of the spherically symmetric Einstein-Vlasov system and their stability*, Math. Proc. Cambr. Phil. Soc. 159, 529–546 (2015).

7. (with Jared Speck) *The non-linear future stability for the dust-Einstein system*, Jour. Hyp. Diff. Eqns., 12, no. 1 (2015) 87–188.
8. (with Steve Shkoller) *Global stability and decay for the classical Stefan problem*, Comm. Pure Appl. Math., 68 (2015), 689–757.
9. (with Steve Shkoller) *Well-posedness for the classical Stefan problem and the zero surface tension limit*, to appear in Arch. Rational Mech. Anal.
10. (with Gerhard Rein) *Stability for the spherically symmetric Einstein-Vlasov system a coercivity estimate*, Math. Proc. Camb. Phil. Soc. (2013) 155, 529–556.
11. *Orthogonality conditions and asymptotic stability in the Stefan problem with surface tension*, Arch. Rational Mech. Anal., Volume 203, Issue 3, (2012) Page 719–745.
12. (with Govind Menon) *Gradient flow structure for domain relaxation in Langmuir films*, Quart. Appl. Math., 70, (2012) 659–664.
13. (with Yan Guo) *Stability in the Stefan problem with surface tension (I)*, Commun. Partial Differential Eqns., 35 (2) (2010) 201–244.
14. (with Gerhard Rein) *Global existence and nonlinear stability for the relativistic Vlasov- Poisson system in the gravitational case*, Indiana Univ. Math. J. 56, (2007) 2453–2488.
15. *A constraint variational problem arising in stellar dynamics*, Quart. Appl. Math., 65, (2007)145–153.

Talks

- Conference at Institut Henri Poincaré, Conference "Fluids, dispersion and blow-up" , July 2017, Invited Speaker
- Erwin Schroedinger Institute, February 2017, Workshop on "Geometric Transport Equations in General Relativity", Invited Speaker
- Conference on Nonlinear Wave Equations, May 2016, IHES, Paris, Invited Speaker
- Loughborough University, Analysis Seminar, December 2015
- University of Chicago, PDE Seminar, November 2015
- University of Texas Austin, Analysis Seminar, November 2015
- New York University Abu Dhabi, Seminar, October 2015
- University of Sussex, October 2015, Analysis and PDE seminar
- PDE Seminar, University of Bayreuth, July 2015
- PDE Seminar, University of Cambridge, March 2015
- PDE Seminar, Oxford University, February 2015
- Colloquium, University of Tuzla, December 2014
- Analysis Seminar, University of Zagreb, December 2014
- PDE and Analysis Seminar, University of Zurich, November 2014
- Analysis Seminar, EPFL Lausanne, November 2014
- PDE Seminar, Imperial College, October 2014
- PDE Seminar, University of Warwick, October 2014
- ESI, Vienna, Workshop on Kinetic theory, September 2014
- Summer School in Applied Mathematics, Beijing University, July 2014
- AIMS conference on Dynamical Systems, Differential Equations and Applications, Madrid, Spain, July, 2014.
- Seminar on Mathematical General Relativity, Paris 6, May 28 2014
- ICMAT, Madrid, PDE Seminar, May 2014
- Analysis Seminar, NYU, April 2014
- Oxbridge PDE days, Cambridge, March 20–21 2014
- Free Boundaries and Moving Interfaces Workshop, Oxford, February 20–22 2014

- Geometry and Analysis Seminar, Imperial College London, December 2013
- GRAVASCO, Workshop on Dynamics & Kinetic theory of self-gravitating systems, IHP, Paris, November 2013
- Two day meeting on hyperbolic PDEs, Trieste, October 2013
- PDE Seminar, University of Zurich, October 2013
- Analysis Seminar, University of Bath, October 2013
- London Analysis and Probability Seminar, October 2013
- Workshop on Kinetic Description of Multiscale Phenomena June 17–28, Heraklion, Crete, June 2013.
- Conference on Mathematical Topics in Kinetic Theory, University of Cambridge, June 2013
- PDE Seminar, Georgia Tech, April 2013
- PDE seminar, IMATI-CNR Institute, Pavia, Italy, June 2012
- Contributed talk , HYP2012, Padova, Italy, June 2012
- Talk at the Oberwolfach workshop on Nonlinear Evolution Problems, Oberwolfach, Germany, May 2012
- PDE/Analysis seminar, UCLA, April 2012
- PDE seminar, UC Davis, April 2012
- Invited talk, AMS-Sectional Meeting on PDE-s, Hawaii, March 2012
- Colloquium, US Naval Academy, March 2012
- PDE/Analysis seminar, MIT, March 2012
- Analysis/PDE seminar, New York University, February 2012
- PDE seminar, Brown, February 2012
- Analysis seminar, ETH, June 2011
- Analysis seminar, University of Cambridge, March 2011
- Mathematical Physics seminar, University of Rome- Tor Vergata, December 15, 2010
- Geometry an analysis seminar, University of Copenhagen, November 19, 2010
- Colloquium, University of Bayreuth, November 2010
- Invited talk at the Workshop on Kinetic and Fluids, Beijing International Center for Mathematical Research, Beijing, July 26 -30, 2010
- PDE/Analysis Seminar, MIT, April 2010
- Brown/Paris 6 PDE Seminar, April 2010
- Participating Analysis Seminar, UCLA, January 2010.
- Stability and Instability in the Stefan problem with surface tension, SIAM Conference on Analysis of PDEs, Miami, December 2009.
- PDE Seminar, University of Connecticut, November 16, 2009.
- Mathematical Physics Seminar, University of Bonn, June 25, 2009.
- Mathematical Physics Seminar, University of Bayreuth, June 17, 2009.
- PDE Seminar, Brown University, May 2009.
- PDE Seminar, Brown University, October 2008.
- Contributed talk, Conference on Nonlinear Dispersive Equations, Istanbul, August 25-29, 2008.
- Joint Dynamical Systems Seminar, Brown Univ. - Free Univ. Berlin, October 2006.
- Mathematical Physics Seminar, University of Bayreuth, June 2006.
- Wissenschaftskolleg Seminar, University of Vienna, April 2005.

- Contributed talk, Workshop on Stability in Kinetic and Fluid models, Thurnau, Germany, September 6-10, 2004.