Adolfo Arroyo-Rabasa

languages: Spanish (native), English (fluent), German (70%)

Education

Oct 2017   *Doctor rer. nat. (PhD)*, Mathematics
Friedrich-Wilhelms-Universität Bonn
Advisor: Prof. Dr. Stefan Müller

Jan 2013   *Master in Science*, Mathematics
Friedrich-Wilhelms-Universität Bonn
Advisor: Prof. Dr. Stefan Müller

Aug 2010   *Bachelor of Science*, Mathematics
Universidad Nacional Autónoma de México (UNAM)
Advisor: Prof. Dr. Mónica Clapp

Employment

Jul 2018–Aug 2021. Research Fellow. The University of Warwick. Coventry, UK.

Sep 2017–Jun 2018. Research Assistant. University of Leipzig. Leipzig, Germany.

Publications

Preprints (Selected publications are preceded by an asterisk)

[10]   * *Slicing and fine properties for functions with bounded $\mathcal{A}$-variation* arXiv:2009.13513

[9]   *Debye screening for the stationary Vlasov-Poisson equation in interaction with a point charge*
with Raphael Winter
to appear in Comm. Partial Differential Equations
arXiv:2005.09764

[8]   *On the fine properties of elliptic operators*
with Anna Skorobogatova
arXiv:1911.08474

[7]   * *Characterization of generalized Young measures generated by $\mathcal{A}$-free measures*
arXiv:1908.03186

Peer-reviewed papers

[6]

Generalized multi-scale Young measures
with Johannes Diermeier
SIAM J. Math. Anal. 52(4), 3252-3300, 2020

[5] *An elementary approach to the dimension of measures satisfying a first-order linear PDE constraint*
Proc. Amer. Math. Soc. 148(1), 273–282, 2020

[4] ** Dimensional estimates and rectifiability for measures satisfying linear PDE constraints*
with Guido De Philippis, Filip Rindler and Jonas Hirsch
Geom. Funct. Anal. 29(3), 639–658, 2019

[3] ** Lower semicontinuity and relaxation of linear-growth integral functionals under PDE constraints*
with Guido De Philippis and Filip Rindler
Adv. Calc. Var. 13(3), 219–255, 2020

[2] ** Relaxation and optimization for linear-growth convex integral functionals under PDE constraints*
J. Funct. Anal. 273(7), 2388–2427, 2017

[1] *Regularity for free interface variational problems in a general class of gradients*
Calc. Var. Partial Differential Equations 55(6), 154–197, 2016

Invited conference talks

Jun 2021
8th European Congress of Mathematics (Portorož, Slovenia)
Mini Symposium in Nonlinear analysis for continuum mechanics
"$\mathcal{A}$-free measures in the calculus of variations"

Oct 2019
Calculus of Variations and Applications in Trani (Trani, Italy)
"Characterization of $\mathcal{A}$-free Young measures"

Feb 2017
Anisotropy 2017 (Warsaw, Poland)
"Lower semicontinuity and relaxation of linear-growth integral functionals under PDE constraints", Institute of Mathematics of the Polish Academy of Sciences

Seminar talks

2020
OIST Fall 2020 Nonlinear Analysis Seminar
"Higher-integrability estimates for systems of PDEs with a non-linear pointwise elliptic constraint"

2020
Virtual Harmonic Analysis Seminars (UK Harmonic Analysis group)
"Function space questions in CalcVar/GMT that are being solved using Fourier Analysis"

2019
Intituto de Matemáticas de la UNAM
"Propiedades finas de funciones de $\mathcal{A}$-variación acotada"

2019
Mathematics Institute of the University of Warwick
"Characterization of $\mathcal{A}$-free Young measures"

2019	Mathematical Institute of the University of Oxford
	"The geometry of measures solving a linear PDE"
2018	Instituto de Matemáticas de la UNAM
	"Dimensional estimates and rectifiability of PDE constrained measures"
2018	Mathematics Institute of the University of Warwick
	"Dimensional estimates and rectifiability of PDE constrained measures"
2017	Max Planck Institute for Mathematics in Leipzig
	"Lower semicontinuity and relaxation of linear-growth integral functionals under PDE constraints"
2016	Mathematics Institute of the University of Leipzig
	"Regularity for Free Interface Variational Problems"
2015	Mathematics Institute of the University of Bonn
	"Variational Energies with a Perimeter Penalization and a Dirichlet Part on a General Class of Gradients"
2014	Mathematics Institute of the University of Bonn
	"H-Convergence"
2013	Instituto de Matemáticas de la UNAM
	"Regularity and Optimization for a Free-Boundary Problem"

Honors & awards

2017	*Magna cum laude*, PhD in Mathematics, The University of Bonn
2013	3-year 'Hausdorff Scholarship' for PhD studies, The University of Bonn
2010	2-year 'Hausdorff Scholarship' for MSc studies, The University of Bonn
2010	*Summa cum laude*, BSc in Mathematics, UNAM
2010	'Gabino Barredo' medal to the best Mathematics student of the 2006-2010 class, UNAM

Teaching experience

2020 Term 2	Theory of PDEs (MA3G1). Lecturer. The University of Warwick
2019 Term 1	Calculus of Variations (MA4G6). Teaching Assistant and 2nd Lecturer. The University of Warwick
2017	Ordinary Differential Equations Seminar (S1G1). Teaching Assistant. The University of Bonn
2015	Scientific Computing II (V3E2/F4E1). Teaching Assistant. The University of Bonn
2010	Linear Algebra I. Teaching Assistant. UNAM

Activities

2018–2019   *Analysis-GMT-PDE Seminar.* Coordinator.
Mathematics Institute of the University of Warwick

2015–2016   *Analysis Oberseminar.* Coordinator.
The University of Bonn