

Vasilis Chousionis

CONTACT INFORMATION

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RESEARCH INTERESTS EDUCATION

Harmonic analysis, geometric measure theory, potential analysis, and PDE .

PhD, University of Helsinki, Finland

PhD in Mathematics, 2004 - 2008

Thesis: "Boundedness and convergence of singular integrals on fractal type sets"

Thesis advisor: Prof. Pertti Mattila

MS, University of North Texas, Denton, TX, USA

MS in Pure Mathematics, 2003 - 2004

Thesis: "Thermodynamic formalism"

Thesis advisor: Prof. Mariusz Urbański

BS, University of Athens, Athens, Greece

BS in Mathematics, 1998 - 2003

EMPLOYMENT

- **Assistant Professor, University of Connecticut**
August 2015 –
- **Finnish Academy Postdoctoral Fellow, University of Helsinki**
January 2014 – August 2015
- **Visiting Assistant Professor, University of Illinois**
August 2012 – December 2013
- **Postdoctoral Researcher, Centre de Recerca Matemàtica, Barcelona and Universitat Autònoma de Barcelona**
February 2011 – August 2012
- **Postdoctoral researcher, University of Helsinki, Center of Excellence in analysis and dynamics research**
January 2009 – December 2011
- **Invited Research Member, Centre de Recerca Matemàtica, Barcelona**
February 2009 – June 2009
- **Research assistant, University of Helsinki, Department of Mathematics and Statistics**
September 2004 – December 2008

- **Research assistant, University of North Texas, Department of Mathematics and Statistics**
Fall 2003 – Summer 2004

RESEARCH GRANTS

- Postdoctoral research grant, Academy of Finland, 2013-2016
297.846 euros.
- Finnish Centre of Excellence in Dynamics, 2011
10.000 euros.
- Finnish Centre of Excellence in Dynamics, 2009
5.000 euros.

PUBLICATIONS

1. "Some Calderón-Zygmund kernels and their relation to rectifiability and Wolff capacities", (with L. Prat), submitted (2014).
2. "Square functions and uniform rectifiability", (with J. B. Garnett, T. Le and X. Tolsa), submitted (2014).
3. "Removable sets for Lipschitz harmonic functions on Carnot groups", (with V. Magnani and J. Tyson), submitted (2013).
4. "A note on weak convergence of singular integrals in metric spaces", (with M. Urbański), submitted (2013).
5. "Homogeneous kernels and self-similar sets", (with M. Urbański), to appear in **Indiana Univ. Math. J.**
6. "Removable sets for homogeneous linear PDE in Carnot groups", (with J. Tyson), to appear in **J. Analyse Math.**
7. "Weak and strong estimates for singular integrals of measures separated by AD-regular boundaries", (with X. Tolsa), to appear in **Int. Math. Res. Not.**
8. "Singular integrals on self-similar sets of metric groups", (with P. Mattila), Proc. Conf. "Further Developments in Fractals and Related Fields", in "Trends in Mathematics" of Birkhauser.
9. "Singular integrals on self-similar sets and removability for Lipschitz harmonic functions in Heisenberg groups", (with P. Mattila), to appear in **J. Reine Angew. Math.**
10. "Capacities associated to Calderón-Zygmund kernels", (with J. Mateu, L. Prat and X. Tolsa) **Potential Anal.** 38 (2013), no. 3, 913–949
11. "Calderón-Zygmund kernels and rectifiability in the plane", (with J. Mateu, L. Prat and X. Tolsa), **Adv. Math.**, 231:1 (2012), 535–568.
12. "Singular integrals on Ahlfors-David regular subsets of the Heisenberg group", (with P. Mattila), **J. Geom. Anal.** 21 (2011), no. 1, 56–77.
13. "Singular integrals of general measures separated by Lipschitz graphs", (with P. Mattila), **Bull. London Math. Soc.** 42 (2010), no. 1, 109–118.
14. "Directed porosity on conformal iterated function systems and weak convergence of singular integrals", **Ann. Acad. Sci. Fenn. Math.** 34 (2009), 215–232.
15. "Singular integrals on Sierpinski gaskets", **Publ. Mat.** 53 (2009), no. 1, 245–256.
16. V. CHOUSIONIS, "Boundedness and convergence of singular integrals on fractal type sets", Doctoral dissertation, Helsinki University Press 2008.

TALKS

- Colloquium Talk, University of Connecticut, February 2014.
- Colloquium Talk, Kansas State University, January 2014.
- Invited speaker at the Finnish Mathematical Days 2014, Helsinki January 2014.
- University of Indiana Analysis Seminar, November 2013
- Invited speaker at the AMS sectional meeting, St. Louis Special session "Interactions between geometric and harmonic analysis" October 2013.
- Invited speaker at the XXII Rolf Nevanlinna Colloquium 2013, Helsinki August 2013.
- Barcelona Analysis Seminar, January 2013
- University of Illinois Analysis Seminar, September 2012
- Contributed talk in the "9th International Conference on Harmonic analysis and PDE's", El Escorial, Spain June 2012
- University of Bilbao, Analysis Seminar, May 2012
- Millican Colloquium Lecture, University of North Texas, March 2012
- Helsinki Functional Analysis Seminar, December 2011.
- Barcelona Analysis Seminar, October 2011
- Universitat Autònoma de Madrid, Department of Mathematics, Analysis Seminar June 2011
- Universitat Autònoma de Barcelona, Department of Mathematics, November 2010
- University of Thessaloniki, Department of Mathematics, Analysis Seminar October 2010
- University of Helsinki, Department of Mathematics, Geometric Analysis Seminar March 2010
- Invited speaker at the Finnish Mathematical Days 2010, University of Jyväskylä January 2010
- Centre de Recerca Matemàtica, Harmonic analysis seminar March 2009
- Contributed talk in the International conference: Fractal geometry and stochastics 4, Greifswald, Germany September 2008
- University of Helsinki, Department of Mathematics, Functional Analysis Seminar March 2008

- Universitat Autònoma de Barcelona, Department of Mathematics , Analysis seminar
June 2007
- Invited Speaker at the Helsinki-Jyväskylä Geometric Measure Theory Workshop, University of Jyväskylä
October 2006

RESEARCH VISITS
AND SELECTED
CONFERENCES
ATTENDED

- University of North Texas, USA
Invited by Professor Mariusz Urbanski,
March 2012, June 2013
- Universidad Autónoma de Madrid, Spain
Invited by Professors Marta Llorente and Ana Vargas
June 2011
- University of Jyväskylä, Finland
Invited by researchers A. Käenmäki and V. Suomala
August 2007
- Universitat Autònoma de Barcelona, Spain
Invited by Professor Verdera
June 2007
- Université Blaise Pascal, Clermont-Ferrand, France
June 2005.
- “Harmonic analysis and related problems”, June 2006, Crete, Greece
- “Fractals 2006”, September 2006, Kyoto, Japan
- “Ahlfors centennial conference”, August 2007, Helsinki, Finland
- “Geometric analysis and applications”, January 2008, Bern, Switzerland
- “Sub-Riemannian geometry and vision”, September 2009, Bologna, Italy
- “Harmonic analysis and applications”, June 2010, Sevilla, Spain
- “Harmonic analysis and PDE’s Workshop”, September 2011, Madrid, Spain
- “9th International Conference on Harmonic analysis and PDE’s”, June 2012, El Escorial, Spain

TEACHING
EXPERIENCE

- University of Illinois
I have taught Undergraduate Complex Variables and several courses of Undergraduate Ordinary Differential Equations.
- Universitat Autònoma de Barcelona
Teaching assistant for Introductory Statistics. During the fall semester of 2011-2012 I was the lecturer of a graduate level mini-course entitled “Ergodic theory methods in fractal geometry”.
- University of Helsinki
I was a teaching assistant for various advanced and intermediate level courses, including Measure and Integration, Real Analysis, Geometric Measure Theory and Fourier Analysis.
- University of North Texas
I taught two classes of the introductory level course, College Algebra, and served as a teaching assistant for two classes of Pre-Calculus.

REFERENCES

- Prof. M. Burak Erdoğan, University of Illinois at Urbana-Champaign,
E-mail: berdogan@math.uiuc.edu
- Prof. Guy David, Université Paris-Sud ,
E-mail: Guy.David@math.u-psud.fr
- Prof. Pertti Mattila, University of Helsinki,
E-mail: pemattil@cc.helsinki.fi
- Prof. Xavier Tolsa, ICREA and Universitat Autònoma de Barcelona,
E-mail: xtolsa@mat.uab.cat
- Prof. Jeremy Tyson, University of Illinois at Urbana-Champaign,
E-mail: tyson@math.uiuc.edu
- Prof. Nikolaos Tzirakis, University of Illinois at Urbana-Champaign,
E-mail: tzirakis@math.uiuc.edu
- Prof. Mariusz Urbański, University of North Texas,
E-mail: urbanski@unt.edu

LANGUAGES

- Greek, Mother Tongue
- English, Excellent knowledge, Certificate of Proficiency in English, University of Cambridge
- Spanish, Fluent