

CURRICULUM VITAE

JOACHIM KRIEGER

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Personal and Education.

- Born on June 3rd 1976, Basel, Switzerland. Citizen of Switzerland.
- Languages: English, German, Swiss German, French
- Mathematisch Naturwissenschaftliches Gymnasium Basel, Switzerland, 1987-1991.
- Humanistisches Gymnasium Basel 1991-1994, graduating with a "Type A(Greek and Latin) Matura".
- Basel University 1994-1995, "Vordiplom der Mathematik und Physik".
- Harvard University 1995-1999. Senior thesis under guidance of Prof. Wilfried Schmid on "Characteristic cycles associated with representations of noncompact Lie groups." BA with Highest Honours in Mathematics.
- Graduate student at Princeton University 1999-2003, advisee of Prof. Sergiu Klainerman. Ph. D. Thesis (2003) on "Global regularity of Wave Maps in 2 and 3 spatial dimensions."

Employment

- Fall 2003: Member at the Institute for Advanced Study, Princeton.
- Spring 2004-2007 : Benjamin Peirce Assistant Professor of Mathematics, Harvard University.
- 2007-: Assistant Professor (TT), The University of Pennsylvania
- 2008-: Calabi Assistant Professor (TT) (chaired position)
- 2009-: Associate Professor(T), The University of Pennsylvania

Research Interests

- Partial differential equations, mathematical physics, harmonic analysis, differential geometry.

Prizes, Awards and Fellowships

- First Prize at competition "La jeunesse recherche", Switzerland (1992).
- Harvard: Phi-Beta-Kappa, Senior Thesis awarded Mumford Prize, recipient of Wister Prize for highest grade point average in mathematics.
- Princeton: Recipient of Dodds Fellowship for the academic year 2002/3.
- Harvard: Recipient of NSF Grant DMS-0401177 "Global regularity and development of singularities for geometric wave equations", 2004-2007
- Sloan Fellow 2008-2010.
- NSF Grant DMS-0757278, 2008-2011
- Calabi Assistant Professorship(Chair), 2008-

Teaching

- Harvard University:** Math 21(Multivariable Calculus), Math 115(Topics in Analysis and Applications), Math121(Honours Linear Algebra), Math 212(Real Analysis), Math112(Real Analysis), Math231(Topics in Nonlinear Hyperbolic PDE)
- Princeton University:** Math 103(Calculus of One Variable)
- The University of Pennsylvania:** Math 240(Analysis), Math 608(Graduate Real Analysis)

Conference Participation upon Invitation

- Participant at 2001 UCLA conference on "Dispersive Equations"
- Participant at 2001 Oberwolfach conference on "Nonlinear Evolution Problems"
- Speaker at the June 2002 joint AMS-UMI conference in Pisa.
- Speaker at the July/August 2002 "Summer School on the Cauchy Problem in General Relativity", Cargese, Korsika.
- Speaker at Oberwolfach May 2003 conference on "Nonlinear Dispersive Equations".
- Speaker at 2004 Special Semester "Phase Space Analysis of Partial Differential Equations" at the Centro Ennio de Giorgi, Pisa, Italy.
- Speaker at 2004 Oberwolfach conference on "Dispersive Differential Equations".
- Speaker at 2005 joint AMS-DMS meeting Mainz
- Speaker at 2005 Oberwolfach conference on "Nonlinear Evolution Problems"
- Speaker at 2005 MSRI workshop on "Nonlinear Dispersive Equations".
- Speaker at 2006 workshop on the Ricci Flow, Harvard University
- Invited Speaker at 2006 workshop at RIMS, Kyoto
- Speaker at 2007 workshop at RIMS, Kyoto
- Invited Speaker at 2008 Oberwolfach conference on geometric flows
- Invited Speaker at 2008 conference "Geometry and Analysis", the Royal Institute of Technology Stockholm.

Invited Talks at Seminars

- 2003: University of Miami, UCLA, Berkeley, IAS,
- 2004: Harvard, Cornell, Courant(NY University),
- 2005: Princeton, UChicago, ETH(Zurich), MIT, UMass Amherst
- 2006: UChicago, Northwestern, UMichigan, ETH, University of Pennsylvania, UC Irvine
- 2007: University of Minnesota, ETH, Cambridge(UK), UCLA
- 2008: University of Rochester, Princeton University, John Hopkins University, University of Pennsylvania, Cornell
- 2009: John Hopkins, EPFL

Colloquia

- 2007: UCSD, University of Toronto,

Publications

- "Global regularity of Wave Maps in 2 and 3 spatial dimensions", Ph. D. Thesis, Princeton University, 2003

- ”Global Regularity of Wave Maps from \mathbf{R}^{3+1} to surfaces”, CMP 238 (2003), no. 1-2, 333-366
- ”Null-form estimates and nonlinear waves”, Advances in Diff. Equations 8 (2003), no. 10, 1193-1231
- ”Global Regularity of Wave Maps from \mathbf{R}^{2+1} to \mathbf{H}^2 ”, CMP 250(2004), 507-580
- ”Stability of spherically symmetric Wave Maps”, Memoirs of the AMS, no. 853(2006), Vol. 181, 80p.
- ”Stable manifolds for all monic supercritical NLS in one dimension”(joint with W. Schlag), J. of the Amer. Math. Soc. 19(2006), no.4, 815-920
- ”Non-generic blow-up solutions for the critical focusing NLS in 1-d”(joint with W. Schlag), Journal of the European Math. Soc. Vol. 11(1), 2009, 1-125
- ”On the focusing critical semi-linear wave equation”(joint with W. Schlag), Amer. J. Math. 129 (2007), no. 3, 843–913.
- ”Global regularity for the Yang-Mills equations on high dimensional Minkowski space.” (joint with J. Sterbenz), 100p., to appear Memoirs of the AMS
- ”Renormalization and blow up for charge one equivariant critical wave maps”, (joint with W. Schlag and D. Tataru), Invent. Math. 171 (2008), no. 3, 543–615.
- ”Slow blow up solutions for the H^1 -critical focusing semi-linear wave equation on \mathbf{R}^3 , joint w. W. Schlag and D. Tataru), Duke Math Journal 147(2009), no. 1, 1-53.
- ”Global solutions for MKG in 4+1 dimensions for data small in the critical Sobolev space”(joint with J. Sterbenz), in preparation.
- ”Global Regularity and Singularity Development for Wave Maps”, Surveys in Diff. Geometry 12(2008), 167-202
- ”Slow Blow up solutions for certain critical wave equations. To appear in ”Proceedings of the RIMS meeting on Harmonic Analysis and Nonlinear Partial Differential Equations”(2007).
- ”Large time decay and scattering for wave maps”, (joint w. K. Nakanishi), Dyn. Partial Differ. Equ. 5 (2008), no. 1, 1–37.
- ”On structural stability of pseudo-conformal blowup for L^2 -critical Hartree NLS”(joint with E. Lenzmann and P. Raphael), to appear Annales Henri Poincare.

-”Renormalization and Blow Up for the critical Yang-Mills problem” (joint w. W. Schlag and D. Tataru), to appear Adv. in Math.

-”Two soliton solutions to the three dimensional gravitational Hartree equation” (joint w. Y. Martel and P. Raphael), to appear Comm. Pure Appl. Math.

-”Concentration Compactness for Wave Maps” (joint w. W. Schlag). In preparation.

Refereeing

J. Math. Phys., Amer. J. Math., Annales Henri Poincare, Int. Math. Res. Notices, Annals of Math., JFA, CMP

References:

- Prof. Wilhelm Schlag, schlag@math.uchicago.edu
- Prof. Jean Bourgain, bourgain@math.ias.edu
- Prof. Sergiu Klainerman, seri@math.princeton.edu
- Prof. Terence Tao, tao@math.ucla.edu
- Prof. Carlos Kenig, cek@math.uchicago.edu
- Prof. Demetrios Christodoulou, demetri@math.ethz.ch
- Prof. Daniel Tataru, tataru@math.berkeley.edu
- Prof. Michael Struwe, struwe@math.ethz.edu