Curriculum Vitae

Neel J. Patel
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a. Education

University of Chicago	Chicago, IL	Mathematics	B.S., June 2012
University of Pennsylvania	Philadelphia, PA	Mathematics	Ph.D., (expected) May 2017

b. Research Interests

Broadly, I am interested in topics in analysis (PDE, harmonic analysis). My primary interest is in partial differential equations of physical origin, focusing on problems from kinetic theory and fluid interface dynamics. In kinetic theory, I have worked on proving criteria for global well-posedness for the relativistic Vlasov-Maxwell system. In fluid dynamics, I have worked on the Muskat interface problem and am interested in studying other fluid interface behaviors such as viscous fingering.

c. Papers

(1) N. Patel & R. Strain. *Large Time Decay Estimates for the Muskat Equation.* arXiv:1610.05271 (2016)
https://arxiv.org/abs/1610.05271
(2) N. Patel. *Three New Results on Continuation Criteria for the 3D Relativistic Vlasov-Maxwell System.* arXiv:1607.07416 (2016)
https://arxiv.org/abs/1607.07416
(3) P. Landweber, E. Lazar & N. Patel. *On Fiber Diameters of Continuous Maps.* The American Mathematical Monthly. Vol. 123, No. 4 (April 2016), pp. 392-397

d. Academic Awards and Honors

- **The Carlitz-Zippin Prize for best Ph.D. thesis**, University of Pennsylvania, Department of Mathematics. *awarded each year to a finishing Ph.D. student for an especially meritorious thesis that lives up to the high standards of the prize's namesakes*
- **Dean Dissertation Completion Fellowship**, University of Pennsylvania Graduate Division of Arts and Sciences, July 2016-April 2017. *university wide selective fellowship awarded for excellent progress towards completion of a PhD thesis*
- **Moez Alimohamed Graduate Student Award for Distinguished Teaching**, University of Pennsylvania Department of Mathematics, 2014-2015. *Annually awarded to one member of the mathematics department for distinguished accomplishment in teaching.*
- **Good Teaching Award**, University of Pennsylvania Department of Mathematics, Spring 2014. *Recognition for excellence in teaching by the department of mathematics. Awarded for Math 370.*
- **Good Teaching Award**, University of Pennsylvania Department of Mathematics, Fall 2013. *Recognition for excellence in teaching by the department of mathematics. Awarded for Math 104.*
- **Benjamin Franklin Fellowship**, University of Pennsylvania School of Arts and Sciences, 2012-2017. *Replaced by the Dean Dissertation Completion Fellowship for the 2016-2017 academic year*
- **Honors in Mathematics**, University of Chicago, Department of Mathematics, May 2012.

e. Mathematics Activities
- **Mathematics Conferences**: (*Nonlinear Waves Summer School*, IHÉS, France (July 2016); *The Cauchy Problem in Kinetic Theory: Recent Progress in Collisionless Models*, Imperial College, London (September 2015); *Harmonic Analysis and PDE: A Conference in Honor of C. E. Kenig*, University of Chicago (September 2014); *KAM theory and Dispersive PDE*, Università Di Roma Sapienza, Rome (September 2014))
- **Primary Organizer of Graduate Analysis Seminar**, University of Pennsylvania Department of Mathematics. (August 2014-present) *Was the lead organizer of the graduate analysis seminar at UPenn*
- **Master Teaching Assistant**, University of Pennsylvania Department of Mathematics. (2014-present) *Appointed by the mathematics department to train new mathematics teaching assistants.*
- **Mathematics Representative to School of Arts and Sciences Student Government**, University of Pennsylvania School of Arts and Sciences. (2013-2014) *Member of the SAS student government, representing the mathematics department*
- **Math Department Open House Panelist**, University of Pennsylvania Department of Mathematics. (2014, 2016) *Appointed by the graduate chair to speak to prospective graduate students about the mathematics PhD program.*

f. Talks
- **Counterexample to Endpoint Strichartz Estimates for the Kinetic Transport Equation** (Graduate Analysis Seminar 2015)
- **Global Classical Solutions to the Relativistic Vlasov-Maxwell System** (Graduate Analysis Seminar 2015)
- **An Introduction to the Bootstrap Principle** (Graduate Seminar 2015)
- **Hausdorff Dimension of Divergent Sets for the Schrodinger Equation** (Graduate Seminar 2014)
- **Rayleigh-Taylor breakdown for the Muskat problem w/ applications to water waves** (Graduate Analysis Seminar 2014)
- **Applications of Littlewood-Paley Theory** (Graduate Seminar 2014)
- **Vorticity and Incompressible Flow** (Graduate Analysis Seminar 2013)
- **The TT* argument and application to the Schrodinger equation** (Graduate Seminar 2013)

g. Teaching Appointments
- **Math 104, Calculus I**; Teaching Assistant (Fall 2013). *Good Teaching Award*
- **Math 370, Algebra**; Teaching Assistant (Spring 2014). *Good Teaching Award*
- **Math 609, Analysis II**; Grader (Spring 2015).
- **Math 584, Mathematics of Medical Imaging**; Grader (Spring 2016).
- **Math 609, Analysis II**; Grader (Spring 2016).

h. References
- **Robert M. Strain**; strain@math.upenn.edu
- **Philip T. Gressman**; gressman@math.upenn.edu
- **Jonathan Luk**; jluk@stanford.edu
- **Robert Glassey**; glassey@indiana.edu
- **David Harbater**; harbater@math.upenn.edu