

## Irfan Alam

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USA

RESEARCH INTERESTS *Mathematics:*  
Nonstandard analysis, probability theory, combinatorial number theory.

*Philosophy:*  
History and philosophy of mathematics, logic, epistemology.

EDUCATION **Louisiana State University, Baton Rouge**  
- Ph.D. Candidate, Mathematics (August 2014 - present)  
• Advisors: Prof. Karl Mahlburg, Prof. Ambar Sengupta  
- M.A. in Philosophy (August 2016 - present)  
- M.S. in Mathematics, (August 2014 - May 2016)

**Indian Statistical Institute, Calcutta**

- M.Math. (July 2012 - May 2014)  
• Passed in first division.

**Indian Statistical Institute, Bangalore Centre**

- B.Math. (Hons.) (July 2009 - May 2012)  
• Passed in first division.

WORKSHOPS & CONFERENCES ATTENDED

- *Connecticut Summer School in Number Theory*  
University of Connecticut, Storrs. (May 2018)
- *Brazos Analysis Seminar*  
University of Houston, Houston. (June 2017)
- *Workshop and Conference on Set Theoretic and Topological Methods in Model Theory*  
Indian Statistical Institute, Tezpur. (September 2017)
- *AIM Workshop on Nonstandard Methods in Combinatorial Number Theory*  
American Institute of Mathematics, San Jose. (August 2017)
- *Workshop on Applications of Model Theory to Operator Algebras*  
University of Houston, Houston. (July-August 2017)
- *IAS-PCMI Graduate Summer School on Random Matrices*  
PCMI, Park City. (June-July 2017)
- *Workshop on Ergodic Theory and Operator Algebras*  
Texas A&M University, College Station. (June 2017)
- *CANT 2017 (Combinatorial and Additive Number Theory)*  
City University of New York, New York City. (May 2017)
- *Southern Regional Number Theory Conference (in honor of Robert Perlis)*  
Louisiana State University, Baton Rouge. (April 2017)

- *Thematic Program on Model Theory*  
Notre Dame University, Notre Dame. (June 2016)
- *Lectures in probability and stochastic processes*  
Indian Statistical Institute, Bangalore. (December 2013)
- *Workshop in mathematics for Master's students (containing talks in areas of probability theory, harmonic analysis, set theory, Riemannian geometry, and dynamical systems)*  
Jadavpur University, Kolkata. (September 2013)
- *International Conference on "New directions in Probability"*  
Indian Statistical Institute, Bangalore. (May 2013)
- *Conference in Number Theory (on the occasion of Srinivasa Ramanujan's 125th birth anniversary)*  
Jadavpur University, Kolkata. (December 2012)
- *ICM satellite conference on probability and stochastic processes*  
Indian Statistical Institute. (August 2010)

TEACHING  
EXPERIENCE

- Instructor of record for MATH 1021 (College Algebra) at Louisiana State University:
  - three sections in Fall 2018.
  - three sections in Spring 2018.
- Instructor of record for two 3-week courses on Mathematical Logic at Center for Talented Youth's Baltimore campus located in Johns Hopkins University. (Summer 2018)
- Graduate teaching assistant in the department of mathematics at Louisiana State University since August 2014, which has involved grading and other works in the following courses:
  - MATH 1550 (Calculus) (Fall 2017)
  - MATH 4153 (Finite Dimensional Vector Spaces) (Spring 2017)
  - MATH 1022 (College Trigonometry) (Fall 2014, 2016)
  - MATH 4058 (Elementary Stochastic Processes) (Spring 2015, 2017)
  - MATH 3355 (Probability) (Spring 2015, 2016, 2017, Fall 2017)
  - MATH 7311 (Real Analysis) (Fall 2015, 2017)
  - MATH 4056 (Mathematical Statistics) (Fall 2014, 2015)
  - MATH 1552 (Calculus II) (Fall 2015)
- Taught the preparatory class for analysis qualifying exam, taken by first year graduate students, in Summer 2016.
- Gave lectures on introduction to probability theory for middle and high school teachers at LaMSTI (The Louisiana Math and Science Teacher Institute) during Summer 2015.

OTHER  
ACADEMIC  
ACTIVITIES

- Member of the Student Colloquium Committee (Fall 2016-present), and Treasurer of the LSU Math Club (Fall 2018-present).
- Gave a three-part talk series on "Introduction to nonstandard analysis and its applications to probability theory" in the Probability Seminar at LSU. (February-March 2018)
- Gave a research talk on analysis for incoming graduate students at GEAUX 2017 (an event welcoming new graduate students in the department of mathematics at LSU). (August 2017)
- Helped in the organization of LSU High School Math Contest. (February 2016)
- Organized analysis talks at GEAUX 2015. (August 2015)
- Worked with Prof. Frank Neubrander in LaMSTI (The Louisiana Math and Science Teacher Institute) to help conduct a summer program from middle-school and high-school teachers (June-July 2015)
- Completed an undergraduate summer project (sponsored by the Indian Academy of Sciences) on Brownian motion under the supervision of Prof. Manjunath Krishnapur at Indian Institute of Sciences, Bangalore. (May-June, December 2013)
- Completed an undergraduate summer project (sponsored by the Indian Academy of Sciences) on topology under the supervision of Prof. Vikraman Balaji at Chennai Mathematical Institute, Chennai. (May-July 2010)

HONORS AND  
AWARDS

- Recipient of B.Math and M.Math stipends at Indian Statistical Institute. (July 2009 - May 2014)
- Received Summer Research Fellowship from Indian Academy of Sciences in 2010 and 2013.
- Qualified in Regional Mathematical Olympiad, 2009.
- Finalist in "Future Space Scientist Program" conducted by Oracle Education Foundation, India. (2008)
- Qualified in 9th National Science Olympiad (conducted by Science Olympiad Foundation). (November 2006)

GRADUATE  
COURSEWORK

*Mathematics:*

- Measure Theory
- Functional Analysis
- Complex Analysis
- Ordinary Differential Equations
- Probability Theory
- Stochastic Analysis
- Ergodic Theory
- Fourier analysis
- Lie groups
- Algebra (groups, rings, fields, modules, and Galois theory)
- Algebraic number theory
- Mathematical logic
- Descriptive set theory
- Differential geometry
- Topology (point-set topology, fundamental groups, and homology theory)
- Theory of Partitions

*Philosophy:*

- Philosophy of Language
- Epistemology - Scientific Knowledge
- Epistemology - A Priori Knowledge
- Computability Theory
- Mathematical Logic
- Non-classical Logics

REFERENCES

**Prof. Karl Mahlburg**, Louisiana State University, mahlburg@math.lsu.edu

**Prof. Ambar Sengupta**, University of Connecticut, ambar.sengupta@math.lsu.edu