Gokul G. Nair

Center For Applied Mathematics
Cornell University, NY
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EDUCATION

Ph.D. in Applied Mathematics 2018 - present
Cornell University, Ithaca, NY, United States
Advisor: Timothy Healey, Department of Mathematics
Expected completion: 2024

Masters in Applied Mathematics 2018-2021
Cornell University, Ithaca, NY, United States
Minors: Mathematics, Theoretical Physics

Bachelor of Science (First Class with Distinction) 2014 - 2018
Indian Institute of Science, Bangalore, India
Major: Physics

VISITING POSITIONS

Visiting Graduate Student Feb - April 2023
Hausdorff Research Institute for Mathematics,
University of Bonn, Bonn, Germany

Visiting Scholar May - July 2017
Department of Engineering Sciences and Applied Mathematics,
Northwestern University, Evanston, IL, United States

RESEARCH INTERESTS

Calculus of Variations, Nonlinear Elasticity, Differential Geometry, Minimal Surfaces, Complex systems

HONOURS

First Class with Distinction, Indian Institute of Science 2018

S.N. Bose Fellowship, Indo-U.S. Science and Technology Forum 2017

KVPY Fellowship, Government of India 2014

RESEARCH PUBLICATIONS

1. *Energy Minimizing Configurations for Highly Deformable Single-Director Elastic Surfaces*, Timothy J. Healey, Gokul G. Nair. `arXiv:2208.09051` (2022)

2. *Energy-Minimizing States for Nonlinearly Elastic Membranes on Prescribed Surfaces* (with T. Healey), working manuscript (2022)

3. *Designing for Robustness in Electric Grids via a General Effective Resistance Measure*, Shriya V. Nagpal, Gokul G. Nair, Francesca Parise, and C. Lindsay Anderson. (submitted to IEEE) `arXiv:2201.00929` (2022).

4. *Fission-fusion dynamics and group-size-dependent composition in heterogeneous populations*, Gokul G. Nair, Athmanathan Senthilnathan, Srikanth K. Iyer, and Vishwesha Guttal. Physical Review E (2019)

TEACHING EXPERIENCE

- Calculus II, Instructor (Fall 2022)
- Partial Differential Equations, Grader (Spring 2022)
- Differential Equations for Engineers, TA (Fall 2021)
- Honours Introduction to Analysis I, Grader (Fall 2020)
- Multivariable Calculus, TA (Spring 2020)
- Differential Equations for Engineers, TA (Fall 2019)
- Multivariable calculus for Engineers, TA (Fall 2018 - Spring 2019)

TALKS

- Proving the Uniformization theorem using Ricci flow, Dynamics Seminar, Cornell University (2020)
- Introduction to Curvature, Applied Mathematics Student Seminar, Cornell University (2020)
- Schoen and Yau's proof of the Positive Mass theorem, Applied Dynamics Seminar, Cornell University (2021)
- On the Dynamics of Power Grids, Applied Dynamics Seminar, Cornell University (2022)
- Energy Minimizing Configurations for Highly Deformable Elastic Surfaces, Horizons in Nonlinear PDEs Summer School, University of Ulm (2022)

CONFERENCES/ WORKSHOPS

- Mathematics for Complex Materials Trimester Programme, Hausdorff Institute for Mathematics, University of Bonn, Germany (Invited 2023)
- Horizons in Nonlinear PDEs Summer School, University of Ulm, Germany (Invited 2022)
- Communicating Mathematics Conference, Cornell University (2022)
- STEM Communication Workshop, Alan Alda Center for Communicating Science (2021)

SERVICE

- President, Cornell SIAM chapter (2021-2022)
- Expanding Your Horizons (EYH), Cornell University (2022)
- Teaching Development Fellow, Cornell Department of Mathematics (Fall 2022)
- Organizer, Applied Mathematics Student Seminar (2020-2022)
- Mentor, Directed Reading Programme, Cornell Department of Mathematics (2020-2022)

COMPUTER LANGUAGES

C, C++, Python (Numpy, Scipy), Mathematica, LaTeX