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/ AWARDS

Cornell Research Travel Grant, Cornell University 2022

Mathematics Teaching Development Fellow, Cornell University 2022

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. *Stationary curves under the Möbius-Plateau energy*, Max Lipton, Gokul G. Nair. `arXiv:2208.12678` (2022)

4. *Designing for Robustness in Electric Grids via a General Effective Resistance Measure*, Shriya V. Nagpal, Gokul G. Nair, Francesca Parise, and C. Lindsay Anderson. (accepted to IEEE) `arXiv:2201.00929` (2022).
5. *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

- Energy Minimizing Configurations for Highly Deformable Elastic Surfaces, Analysis Seminar, Cornell University (2022)
- Energy Minimizing Configurations for Highly Deformable Elastic Surfaces, Horizons in Nonlinear PDEs Summer School, University of Ulm (2022)
- Schoen and Yau's proof of the Positive Mass theorem, Applied Dynamics Seminar, Cornell University (2021)
- Introduction to Curvature, Applied Mathematics Student Seminar, Cornell University (2020)
- Proving the Uniformization theorem using Ricci flow, Dynamics Seminar, Cornell University (2020)
- On the Dynamics of Power Grids, Applied Dynamics Seminar, Cornell University (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)
- Teaching Development Fellow, Cornell Department of Mathematics (Fall 2022)
- Organizer, Mathematics teaching seminar (Fall 2022)
- Organizer, Applied Mathematics Student Seminar (2020-2022)
- Mentor, Directed Reading Programme, Cornell Department of Mathematics (2020-2022)
- Expanding Your Horizons Volunteer, Cornell University (2022)

HUMAN LANGUAGES

- Native proficiency: English, Malayalam
- Fluent: Hindi, Kannada
- Limited proficiency: Tamil, Sanskrit

COMPUTER LANGUAGES

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