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Assistant Professor

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Education

- 2006 **Ph.D. in Mathematics**, *University of Chicago*.
- 2001 **M.S. in Mathematics**, *University of Chicago*.
- 1999 **B.Sc. in Mathematics**, *St. Xavier's College, Mumbai*.

Employment

- 2009–present **Assistant Professor**, *Mathematical Sciences*, Carnegie Mellon University.
- 2006–2009 **Szegö Assistant Professor**, *Mathematics*, Stanford University.

Grants

- 2007–2010 **NSF DMS-0707920**, *A stochastic Lagrangian approach to non-linear transport equations*.
- 2010–2013 **NSF DMS-1007914**, *A probabilistic approach to the Navier-Stokes equations*.

Publications

- [1] G. Iyer, *Continuous Vector Products in \mathbb{R}^n* , The Bombay Mathematics Colloquium Bulletin (1998), [Undergraduate publication].
- [2] G. Iyer, *Transport in viscous rotating fluids*, Commun. Math. Sci. **2** (2004), no. 4, 673–684. MR2119933 (2005k:76136)
- [3] G. Iyer, *A stochastic perturbation of inviscid flows*, Comm. Math. Phys. **266** (2006), no. 3, 631–645, DOI 10.1007/s00220-006-0058-5. MR2238892 (2007e:76051)
- [4] P. Constantin and G. Iyer, *A stochastic Lagrangian representation of the three-dimensional incompressible Navier-Stokes equations*, Comm. Pure Appl. Math. **61** (2008), no. 3, 330–345, DOI 10.1002/cpa.20192. MR2376844 (2009b:35319)
- [5] P. Constantin and G. Iyer, *Stochastic Lagrangian transport and generalized relative entropies*, Commun. Math. Sci. **4** (2006), no. 4, 767–777. MR2264819 (2009a:60073)
- [6] G. Iyer, *A stochastic Lagrangian proof of global existence of the Navier-Stokes equations for flows with small Reynolds number*, Ann. Inst. H. Poincaré Anal. Non Linéaire **26** (2009), no. 1, 181–189, DOI 10.1016/j.anihpc.2007.10.003. MR2483818
- [7] G. Iyer and J. Mattingly, *A stochastic-Lagrangian particle system for the Navier-Stokes equations*, Nonlinearity **21** (2008), no. 11, 2537–2553, DOI 10.1088/0951-7715/21/11/004. MR2448230 (2009h:76060)
- [8] P. Constantin, G. Iyer, and J. Wu, *Global regularity for a modified critical dissipative quasi-geostrophic equation*, Indiana Univ. Math. J. **57** (2008), no. 6, 2681–2692, DOI 10.1512/iumj.2008.57.3629. MR2482996 (2009k:35120)

- [9] G. Iyer and A. Novikov, *The regularizing effects of resetting in a particle system for the Burgers equation*, Ann. Probab. **39** (2011), no. 4, 1468–1501, DOI 10.1214/10-AOP586. MR2857247
- [10] G. Iyer, A. Novikov, L. Ryzhik, and A. Zlatoš, *Exit times of diffusions with incompressible drift*, SIAM J. Math. Anal. **42** (2010), no. 6, 2484–2498, DOI 10.1137/090776895. MR2733257
- [11] P. Constantin and G. Iyer, *A stochastic-Lagrangian approach to the Navier-Stokes equations in domains with boundary*, Ann. Appl. Probab. **21** (2011), no. 4, 1466–1492, DOI 10.1214/10-AAP731. MR2857454

Preprints

- [12] G. Iyer, A. Novikov, L. Ryzhik, and T. Komorowski, *From homogenization to averaging in cellular flows*, J. Eur. Math. Soc. (2011), submitted, available at [arXiv:1108.0074](https://arxiv.org/abs/1108.0074).
- [13] G. Iyer and K. C. Zygalakis, *Numerical studies of homogenization under a fast cellular flow*, SIAM Multiscale Model. Simul. (2011), submitted, available at [12-CNA-001](https://arxiv.org/abs/12-CNA-001).
- [14] G. Iyer, R. L. Pego, and A. D. Zarnescu, *Coercivity and stability results for an extended Navier-Stokes system* (2012), preprint, available at [arXiv:1202.5671](https://arxiv.org/abs/1202.5671).

Professional activities

Conferences and workshops organized.

- Oct, 2011 CNA Conference, Incompressible fluids, Turbulence and Mixing, *Carnegie Mellon*.
- Nov, 2011 SIAM Mini symposium, Fluid Dynamics: Deterministic and Stochastic perspectives, *San Diego*.
- Jul, 2013 Mathematics Research Communities: Regularity problems for nonlinear partial differential equations modeling fluids and complex fluids., *Utah*.

Editorial work

- 2012 Guest Associate Editor, *J. Math. Phys.*, *Special Issue commemorating the 60th birthday of Peter Constantin*.

Journal referee work.

- Acta Appl. Math. ◦ Amer. Math. Monthly. ◦ Ann. Appl. Probab. ◦ Ann. Inst. H. Poincaré Anal. Non Linéaire. ◦ Bull. Sci. Math. ◦ Commun. Math. Phys. ◦ Commun. Math. Sci. ◦ Duke Math J. ◦ ESAIM Control Optim. Calc. Var. ◦ J. Differential Equations. ◦ J. Fluid Mech. ◦ J. Math. Phys. ◦ J. Stat. Phys. ◦ Nonlinearity. ◦ Probab. Theory Relat. Fields. ◦ Phys. Lett. A. ◦ Stochastic Process. Appl.

Educational activities

Courses taught

- Carnegie Mellon Linear Algebra, Stochastic Calculus (graduate), PDE, Honors Vector Analysis
- Stanford Functional Analysis, Linear Algebra, Measure Theory, Nonlinear Dynamics, PDE, PDE (graduate), Real Analysis.
- Chicago Calculus, Honors Calculus, Multi-variable Calculus.