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## EDUCATION

- **The University of Texas at Austin**, Texas, USA  
Ph.D., Physics, May 2004  
Dissertation: “Numerical Studies of the Standard Nontwist Map and a Renormalization Group Framework for Breakup of Invariant Tori”  
Supervisor: Philip J. Morrison
- **Indian Institute of Technology**, Kanpur, India  
M.Sc., Physics, May 1996

## EMPLOYMENT AND TEACHING EXPERIENCE

- *Fellow*, TIFR Center for Applicable Mathematics, Bangalore, India: July 2007 - present
  - *Postdoctoral Fellow*, Mathematical Sciences Research Institute (MSRI), Berkeley, California, USA: January - May 2007
  - *Postdoctoral Researcher*, Department of Mathematics, University of North Carolina, Chapel Hill, NC, USA: August - December 2006
    - *Instructor*: Math 233 “Multivariable Calculus,” Fall 2006
  - *Postdoctoral Fellow*, Statistical and Applied Mathematical Sciences Institute (SAMSI), Durham NC, USA: January 2005 - August 2006
  - University of Texas, Austin, Texas, USA
    - *Graduate Research Assistant*, Institute for Fusion Studies: June 2000 - May 2004
    - *Assistant instructor*: August 1999 - May 2000
      - \* PS 303 “Introduction to Physical Science I”
    - *Teaching Assistant*: August 1996 - August 1999
      - \* PHY 116L: Laboratory for calculus based Electricity and Magnetism
      - \* PHY 102N: Laboratory for non-calculus based General Physics
      - \* Tutor for General Physics courses
      - \* Grader for PHY 302K: calculus-based Introduction to Physics
- Recommended for Best Teaching Assistant award*

PUBLICATIONS*Refereed -*

1. A. Apte, A. Wurm, and P.J. Morrison, "Renormalization and destruction of  $1/\gamma^2$  tori in the standard nontwist map," *Chaos* **13**, 421-433 (June 2003)
2. A. Wurm, A. Apte, and P.J. Morrison, "On reconnection phenomena in the standard nontwist map," *Brazilian Journal of Physics* **34**, 1700-1706 (December 2004)
3. A. Apte, A. Wurm, and P.J. Morrison, "Renormalization for breakup of invariant tori," *Physica D* **200**, 47-59 (January 2005)
4. A. Apte, R. de la Llave, and N.P. Petrov, "Regularity of critical invariant circles of the standard non-twist map," *Nonlinearity* **18**, 1173-1187 (May 2005)
5. A. Wurm, A. Apte, K. Fuchss and P.J. Morrison, "Meanders and reconnection-collision sequences in the standard nontwist map," *Chaos* **15**, 023108 (June 2005)
6. A. Apte, R. de la Llave, and E. Petrisor, "Comment on 'Reconnection scenarios...'," *Chaos Solitons and Fractals* **14**, 117 (2002)," *Chaos Solitons and Fractals* **27**, 1115 (2006)
7. K. Fuchss, A. Wurm, A. Apte, and P.J. Morrison, "Breakup of shearless meanders and 'outer' tori in the standard nontwist map," *Chaos* **16**, 033120 (September 2006)
8. A. Apte, M. Hairer, A. M. Stuart, and J. Voss, "Sampling the posterior: an approach to non-Gaussian data assimilation," *Physica D* **230**, 50-64 (June 2007)
9. T.B. Krause, P.J. Morrison, and A. Apte, "A unique approach to the Darwin approximation," *Phys. Plasmas* **14** 102112 (October 2007)
10. A. Apte, C.K.R.T. Jones, and A. M. Stuart, "A Bayesian approach to Lagrangian data assimilation," *Tellus A* **60**, 336-347 (March 2008)
11. A. Apte, C.K.R.T. Jones, A. M. Stuart, and J. Voss, "Data Assimilation: Mathematical and Statistical Perspectives," *Int. J. Numer. Methods in Fluids* **56** 1033 (2008)

*Non-refereed / Proceedings -*

1. A. Apte, "Wave-mean-flow interaction in Oldroyd-B fluid," *Proceedings of the 2003 Program in Geophysical Fluid Dynamics* Woods Hole Oceanographic Institution, Woods Hole, MA 02543 USA <http://gfd.whoi.edu/proceedings/2003/PDFvol2003.html>

PRESENTATIONS*Talks -*

1. Working Dynamical Systems seminar, University of Texas, Austin TX, October 2004
2. Plasma Theory Group seminar, Los Alamos National Laboratory, November 2004
3. Department of Mathematics and Mechanics seminar, Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas (IIMAS), UNAM, Mexico City, Mexico, November 2004
4. SIAM Conference on Applications of Dynamical Systems, Snowbird UT, May 2005

5. Workshop on “Mathematics of Data Assimilation,” University of Warwick, Coventry, UK, May 2006
6. Seminars at TIFR Center, Bangalore, India; Inst. Math. Sciences, Chennai, India; Inst. Plasma Research, Ahmedabad, India, February 2007
7. Workshop on “Environmental Modeling and Data Assimilation,” University of Warwick, Coventry, UK, November 2007
8. Contributed talk, National Conference on Nonlinear Sciences and Dynamics, Ahmedabad, India, January 2008
9. Colloquium, Indian Institute of Technology, Chennai, India, March 2008
10. Colloquium, Indira Gandhi Centre for Atomic Research, India, March 2008
11. Invited talk, National Seminar on “Generalizations and Approximations in Mathematics,” Visva-Bharati University, India, March 2008
12. Colloquium, Indian Institute of Technology, Mumbai, May 2008
13. Invited talk, International Conference on Nonlinear Dynamical Systems and Turbulence, Indian Institute of Science, Bangalore, India, July 2008
14. Contributed talk, Workshop on “Stochastic Differential Equation Models with Applications to the Insulin-Glucose System and Neuronal Modelling,” Middlefart, Denmark, August 2008

*Posters -*

1. Sherwood Fusion Theory Conference, Rochester NY, April 2002
2. Annual meeting of the APS Division of Plasma Physics, Orlando FL, October 2002
3. Annual meeting of the APS Division of Fluid Dynamics, Dallas TX, November 2002
4. Sherwood Fusion Theory Conference, Corpus Christi TX, April 2003
5. SIAM Conference on Applications of Dynamical Systems, Snowbird UT, May 2003
6. Annual meeting of the APS Division of Plasma Physics, Albuquerque NM, October 2003
7. Sherwood Fusion Theory Conference, Missoula MN, April 2004
8. SIAM Conference on Applications of Dynamical Systems, Snowbird UT, May 2005
9. Workshop on Data Assimilation, SAMSI, May 2006
10. SIAM Conference on Applications of Dynamical Systems, Snowbird UT, May 2007
11. Conference on Nonlinear Dynamics: Integrability and Chaos, Bharathidasan University, Tiruchirapalli, India, February 1998.

PROJECTS AND FELLOWSHIPS

1. “Entropy changes during nucleosynthesis in the early universe.” Project at the Vacation Students’ Programme at Inter University Center for Astronomy and Astrophysics (IUCAA), Pune, India, August 1994; Supervisor: N.C. Rana, IUCAA
2. “Entropy of  $\mathcal{N} = 4$  supersymmetric theory and its relation to black holes.” Qualifier seminar, UT Austin, December 1998; Collaborator: Li Jiang; Supervisor: Willy Fischler
3. “A search for CH stars in globular clusters.” E. Ambrose, A. Apte, T. Krause, M. Wolf; Project for the “Observational Astronomy” class at UT Austin, Summer 2001.
4. “Wave–mean-flow interactions in Oldroyd-B fluid.” Project completed as a Fellow at the Summer Program in Geophysical Fluid Dynamics, Woods Hole Oceanographic Institute, Woods Hole MA, August 2003 - Supervisor: Oliver Bühler, Courant Institute, NY

SERVICES

- Referee for *Chaos, Communications in Nonlinear Science and Numerical Simulation, Discrete and Continuous Dynamical Systems, Physica D, Physical Review, Journal of Earth System Science, and Current Science*
- Elected as Membership Coordinator (1999-2000), Food Buyer (Summer 2000), and Director (Fall 2000) of Laurel House Cooperative, Austin TX
- Judge for Texas State Science Fair, Austin TX, 1999
- Workshop leader in “Holding office hours and dealing with student problems” and “Sharing concerns” sessions and participant in “Experienced TAs and AIs and UT undergraduate students” session of Fall 1999 and Summer 2000 International Teaching Assistants’ Workshop, University of Texas, Austin

LANGUAGES

Marathi (native), English (near-native), Hindi and Spanish (fluent)