CURRICULUM VITAE

Name	**GANAPATI SAHOO**
Title	Research Associate
Date of Birth	April 19, 1981
Nationality	Indian
Affiliation	Department of Mathematics and Statistics, and Department of Physics, University Helsinki, Finland.
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URL	http://people.roma2.infn.it/∼sahoo
Languages	English, Hindi, Oriya (*All with fluency in speaking, reading and writing*)

Education

Doctor of Philosophy in Physics (Dec 2010)
at the Department of Physics, Indian Institute of Science, Bangalore, Karnataka, India.
Research Focus: Turbulent flows, Direct numerical simulations and models.
Thesis: *Systematics of statistical properties of homogeneous and isotropic magnetohydrodynamic turbulence.*

Master of Science in Physics (July 2003)
at the Department of Physics, Utkal University, Bhubaneswar, Orissa, India.
Rank 4^{th} *in the University.*

Bachelor of Science in Physics (Aug 2001)
at the Buxi Jagabandhu Bidyadhar College, Utkal University, Bhubaneswar, Orissa, India.
Rank 5^{th} *in the University.*

Intermediate in Science (July 1998)
at the Maharishi College of Natural Law, Bhubaneswar, Orissa, India.

Fellowships

2011-2014: Postdoctoral Research Fellowship, Max Planck Society, Germany.

2006-2008: Senior Research Fellow, Council of Scientific and Industrial Research, India.

2003-2005: Junior Research Fellow, Council of Scientific and Industrial Research, India.

2001-2003: National Scholarship for Bachelor's Degree, Govt. of India.

Research/Teaching Experiences

Mar 2014 - Mar 2017 : Researcher under European Reaserch Council (Advanced grant "NewTURB" No. 339032, PI: Luca Biferale), Department of Physics and & INFN, University of Rome Tor Vergata, Italy.

Mar 2011 - Mar 2014 : Research Scientist at Max Planck Institute for Dynamics and Self-Organization, Göttingen, Germany.

Dec 2012 - Apr 2013 : Faculty Assistant at Institute for Nonlinear Dynamics, University of Göttingen, Germany.

Sep 2010 - Mar 2011 : Assistant Professor at School of Applied Sciences, KIIT University, Bhubaneswar, India.

Jul 2010 - Sep 2010 : Research Associate at Jawaharlal Neheru Center for Advanced Scientific Research, Bangalore, India.

Aug 2008 - Jul 2010 : R & D Assistant at Jawaharlal Neheru Center for Advanced Scientific Research, Bangalore, India.

Aug - Dec 2005 : Teaching Assistant for one-semester course on *Advanced Condensed Matter Physics* at Department of Physics, Indian Institute of Science, India.

Jan - Apr 2005 : Teaching Assistant for one-semester course on *Advanced Statistical Physics* at Department of Physics, Indian Institute of Science, India.

Dec - Jan 2002 : Lecturer for a course on *Higher Mathematics* at APTECH Computer Education, Bhubaneswar, India.

Technical Skills

Direct Numerical Simulations of 3D/2D Navier-Stokes equations/Magnetohydrodynamic equations, Shell models.

Programming with C and Fortran 90, Parallel programming with MPI/OpenMP, Matlab, matplotlib, Paraview, Visit, Gnuplot, Basics of C++/Shell/Python/Mathematica, Latex, Web languages like HTML, PHP.

UNIX/LINUX/Mac/Windows Environments, Basic System Administration.

Hot-wire Anemometry, Lagrangian Particle Tracking Velocimetry, Experiments with high power LASER and Optics.

Publications

Peer Reviewed Journals

- *Discontinuous transition from direct to inverse cascade in three-dimensional turbulence.*
  G. Sahoo, A. Alexakis, and L. Biferale.
  Physical Review Letters, Vol. 118, **164501** (2017), American Physical Society.

- *Helicity statistics in homogeneous and isotropic turbulence and turbulence models.*
  G. Sahoo, M. De Pietro, and L. Biferale.
  Physical Review Fluids, Vol. 2, **024601** (2017), American Physical Society.

- *Local and nonlocal energy spectra of superfluid* ^{3}He *turbulence.*
  L Biferale, D Khomenko, V L'vov, A Pomyalov, I Procaccia, **G. Sahoo**.
  Physical Review B, Vol. 95, **184510** (2017), American Physical Society.

- *Effects of magnetic and kinetic helicities on the growth of magnetic fields in laminar and turbulent flows by helical-fourier decomposition.*
  M. Linkmann, **G. Sahoo**, M. McKay, A. Berera, and L. Biferale.
  The Astrophysical Journal, Vol. 836, **26** (2017), The American Astronomical Society.

- *Dynamic multiscaling in magnetohydrodynamic turbulence.*
  S. S. Ray, **G. Sahoo**, and R. Pandit.
  Physical Review E, Vol. 94, **053101** (2016), American Physical Society.

- *Depletion of Nonlinearity in Magnetohydrodynamic Turbulence: Insights from Analysis and Simulations.*
  J. D. Gibbon, A. Gupta, G. Krstulovic, R. Pandit, H. Politano, Y. Ponty, A. Pouquet, **G. Sahoo**, J. Stawarz.
  Physical Review E, Vol. 93, **043104** (2016), American Physical Society.

- *Role of Helicity for Large- and Small-scale Turbulent Fluctuations.*
  G. Sahoo, F. Bonaccorso, and L. Biferale.
  Physical Review E, Vol. 92, **051002 (R)** (2015), American Physical Society.

- *Disentangling the Triadic Interactions in Navier-Stokes Equations.*
  G. Sahoo, L. Biferale.
  The European Physical Journal E, Vol. 38, **114** (2015), European Physical Society.

- *Multiscaling in Hall-Magnetohydrodynamic Turbulence: Insights from a Shell Model.*
  D. Banerjee, S. S. Ray, **G. Sahoo**, and R. Pandit.
  Physical Review Letters, Vol. 111, **174501** (2013), American Physical Society.

- *Real-space Manifestations of Bottlenecks in Turbulence Spectra.*
  U. Frisch, S. S. Ray, **G. Sahoo**, D. Banerjee, and R. Pandit.
  Physical Review Letters, Vol. 110, **064501** (2013), American Physical Society.

- *Systematics of the Magnetic-Prandtl-number Dependence of Homogeneous, Isotropic Magnetohydrodynamic Turbulence.*
  G. Sahoo, P. Perlekar, and R. Pandit.
  New Journal of Physics, Vol. 13, **013036** (2011), IOP Publishing Ltd and DPG.

- *Dynamo Onset as a First-Order Transition: Lessons from a Shell Model for Magnetohydrodynamics.*
  G. Sahoo, D. Mitra, and R. Pandit.
  Physical Review E, Vol. 81, **036317** (2010), American Physical Society.

Conference Abstracts/Proceedings

- *Direct and inverse energy cascades in strongly rotating turbulent flows.*
  G. Sahoo, I. Mazzitelli, P. Perlekar, F. Bonaccorso, L. Biferale.
  69^{th} Annual Meeting of American Physical Society, Division of Fluid Dynamics, Nov 20-22, Portland, USA (2016).
- *Effects of magnetic and kinetic helicities on the growth of magnetic fields in laminar and turbulent flows by helical-Fourier decomposition.*
  M. Linkmann , **G. Sahoo**, M. McKay, A. Berera, and L. Biferale.
  69^{th} Annual Meeting of American Physical Society, Division of Fluid Dynamics, Nov 20-22, Portland, USA (2016).
- *On the statistics of helicity in three-dimensional turbulence.*
  G. Sahoo, M. Linkmann, F. Pucci, L. Biferale.
  11^{th} European Fluid Mechanics Conference, Sep 12-16, Seville, Spain (2016).
- *Inverse energy transfer and large-scale dynamo action in helically projected magnetohydrodynamic flows.*
  M. Linkmann, A. Berera, L. Biferale, M. McKay, **G. Sahoo**.
  11^{th} European Fluid Mechanics Conference, Sep 12-16, Seville, Spain (2016).
- *On the effects of helicity in magnetohydrodynamic turbulence.*
  G. Sahoo, F. Bonaccorso, M. De Pietro, L. Biferale.
  7^{th} Interdisciplinary Turbulence Initiative Conference, Sep 07-09, Bertinoro, Italy (2016).
- *Effects of helicity on the energy transfer in three-dimensional turbulence.*
  G. Sahoo and L. Biferale.
  24^{th} International Congress of Theoretical Applied Mecahnics, Montréal, Canada (2016).
- *Effects of helicity in magnetohydrodynamic turbulence.*
  G. Sahoo.
  Advances in Geophysical and Astrophysical Turbulence, Institut d'Études Scientifiques de Cargèse, Corsica, France (2016).
- *Role of helicity in three dimensional turbulence.*
  G. Sahoo and L. Biferale.
  PRACE Scientific and Industrial Conference, May 10-12, Prague, Czech Republic (2016).
- *On the role of the helicity in the energy transfer in three-dimensional turbulence.*
  G. Sahoo and L. Biferale.
  IUTAM Symposium Helicity Structures and Singularity in Fluid and Plasma Dynamics, April 11-15, Venice, Italy (2016).
- *Helicity and energy transfer in three dimensional turbulence.*
  G. Sahoo and L. Biferale.
  Flowing matters, January 11-15, Porto, Portugal (2016).
- *Inverse energy cascade in non-local helical shell-models of turbulence.*
  M. De Pietro, L. Biferale, **G. Sahoo**, and A. Mailybaev.
  68^{th} Annual Meeting of American Physical Society, Division of Fluid Dynamics, Nov 22-24, Boston, USA (2015).
- *On the role of the helicity in the energy transfer in three-dimensional turbulence.*
  G. Sahoo and L. Biferale.
  15^{th} European Turbulence Conference, August 25-28, Delft, The Netherlands (2015).
- *On the role of the helicity in the energy transfer in three-dimensional turbulence.*
  G. Sahoo and L. Biferale.
  Flowing matter across the scales, March 24-27, Rome, Italy (2015).
- *On the direct and inverse energy transfer in two- and three-dimensional turbulent flows.*
  G. Sahoo, L. Biferale, and M Pietro.
  67^{th} Annual Meeting of American Physical Society, Division of Fluid Dynamics, Nov 23-25, San Francisco, USA (2014).
- *Direct Numerical Simulations and models of Fluid and Magnetohydrodynamic turbulence.*
  G. Sahoo.
  HPC Challenges in Computational Sciences, June 1-6, Budapest, Hungary (2014).

- *Direct Numerical Simulations of Three-dimensional Magnetohydrodynamic Turbulence with Random, Power-law Forcing.*
  G. Sahoo and R. Pandit.
  13^{th} European Turbulence Conference, September 12-15, Warsaw, Poland (2013).

- *Dynamo onset as a first-order transition.*
  G. Sahoo, D. Mitra, and R. Pandit.
  Fluctuations and Turbulence in the Microphysics and Dynamics of Clouds, September 2-10, Perquerolles, France (2010).

- *Systematics of Dynamo Action in a Shell Model for Magnetohydrodynamic Turbulence.*
  G. Sahoo and R. Pandit.
  2^{nd} UN/NASA Workshop on International Heliophysical Year, Nov 27- Dec 01, Bangalore, India (2006).

- *Dynamo Action in a MHD Shell Model.*
  G. Sahoo and R. Pandit.
  Complex Systems and Fluid Mechanical Stirring and Mixing: The Lagrangian Approach, February 11-17, Rehovot, Israel (2006).

Invited Talks/Seminars

- *Energy cascade and structures in a turbulent flow*, on January 11, 2017, at School of Physical Sciences, National Institute of Science Education and Research, Bhubaneswar, India.
- *Role of helicity in three dimensional turbulence*, on January 4, 2017, at Institute of Physics, Bhubaneswar, India.
- *Helicity in three dimensional turbulence.*, on December 2, 2016, at Department of Mathematics and Statistics, University of Helsinki, Finland.
- *On the effects of Helicity in turbulence.*, on July 18, 2016, at Department of Physics, University of Rome Tor Vergata, Italy.
- *Helicity in three dimensional turbulence.*, on December 7, 2015, at Rencontre Nicoise de Mecanique des Fluides, University of Nice Sophia Antipolis, Nice, France.
- *Role of Helicity in Transfer of Energy and Small Scale Structures in Three-Dimensional Turbulence.*, on August 12, 2015, Space Physics Seminar at University of California, Los Angeles, USA.
- *Intermittency in Helically Decimated Navier-Stokes Equations*, on December 15, 2014, at Center for Condensed Matter Theory, Indian Institute of Science, Bangalore, India.
- *Magnetic Prandtl number dependence in magnetohydrodynamic turbulence*, on February 17, 2012, at University of Rome Tor Vergata, Rome, Italy.
- *Intermittency in magnetohydrodynamic turbulence*, on November 16, 2010, at Indian Institute of Technology, Kanpur, India.
- *Systematics of the Statistical Properties of Homogeneous and Isotropic Magnetohydrodynamic Turbulence*, on August 25, 2010, at Institute for Plasma Research, Gandhinagar, India.
- *Understanding the Imaging Processes*, on July 4, 2002, at NCRA, Pune, India.

Participation in Conferences/Schools/Workshops

- 12-14 Dec 2016: Complex Fluids (CompFluHyd) Hyderabad, India.
- 20-22 Nov 2016: 69^{th} Annual Meeting of American Physical Society, Division of Fluid Dynamics, Portland, USA.
- 10-14 Oct 2016: HPC Applications to Turbulence and Complex Flows, Rome, Italy.
- 12-16 Sep 2016: 11^{th} European Fluid Mechanics Conference, Seville, Spain.
- 07-09 Sep 2016: 7^{th} Interdisciplinary Turbulence Initiative Conference, Bertinoro, Italy.
- 21-26 Aug 2016: 24^{th} International Congress of Theoretical Applied Mecahnics, Montréal, Canada.
- 26 Jul - 05 Aug 2016: Advances in Geophysical and Astrophysical Turbulence, Corsica, France.
- 10-12 May 2016: PRACE Scientific and Industrial Conference, Prague, Czech Republic.

- 11-15 Apr 2016: IUTAM Symposium, Venice, Italy.
- 11-15 Jan 2016: Flowing matters, University of Porto, Porto, Portugal.
- 25-28 Aug 2015: 15^{th} European Turbulence Conference, TU/Delft, Delft, The Netherlands.
- 24-27 Mar 2015: Flowing Matter Across the Scales, Istituto Nazionale di Studi Romani, Rome, Italy.
- 23-25 Nov 2014: 67^{th} Annual Meeting of American Physical Society, Division of Fluid Dynamics, San Francisco, USA.
- 01-06 Jun 2014: 5^{th} International Summer School on HPC Challenges in Computational Sciences, University of Technology and Economics, Budapest, Hungary.
- 15-16 May 2014: Parallel I/O and Management of Large Scientific Data, CINECA, Rome, Italy.
- 07-09 Jun 2012: COST Meeting on Non ideal particles and aggregates in turbulence, Lecce, Italy.
- 14-16 May 2012: COST Meeting on Particles in turbulence, Leiden, Netherlands.
- 16-17 Sep 2011: Symposium on Turbulence - the Historical Perspective, Warsaw, Poland.
- 12-15 Sep 2011: 13^{th} European Turbulence Conference, Warsaw, Poland.
- 10-18 Sep 2010: EUFAR Training Course on Training and Education for Turbulence Research via Airborne Data (TETRAD), Hyeres, France.
- 02-10 Sep 2010: Fluctuations and Turbulence in the Microphysics and Dynamics of Clouds, IGESA center of Perquerolles, France.
- 22 Oct - 03 Nov 2007: Workshop on Dynamical Systems, IISc, Bangalore, India.
- 27 Aug - 07 Sep 2007: 1^{st} Kodai-Trieste workshop on Plasma Astrophysics, IIAP, Kodaikanal, India.
- 30 Jul - 24 Aug 2007: Les Houches Summer School - Session 88 on Dynamos, Observatoire de Grenoble, University Joseph Fourier, Les Houches, France.
- 04-24 Dec 2006: 3^{rd} SERC School on Nonlinear Dynamics, IACS, Kolkata, India.
- 27 Nov - 01 Dec 2006: 2^{nd} UN/NASA Workshop on International Heliophysical Year and Basic Space Science, IIAP, Bangalore, India.
- 11-13 Aug 2006: NCBS-JNCASR-Harvard Symposium on Interdisciplinary Materials Science, Computation and Biology, JNCASR and NCBS, Bangalore, India.
- 11-17 Feb 2006: 8^{th} Minerva Winter School and Meeting of European Networks on Physics of Nonequilibrium and Complex Systems and Fluid Mechanical Stirring and Mixing: The Lagrangian Approach, Weizmann Institute of Science, Rehovot, Israel.
- 18-21 Jan 2006: School on Computational Approaches to Materials Science, JNCASR, Bangalore, India.
- 07-11 Nov 2005: Indo-Chinese Workshop on Recent Advances in Solar Physics, IIAP, Bangalore, India.
- 18-21 Jul 2005: International Conference on Scientific Computation, Numerical Analysis and Applications, IISc, Bangalore, India.
- 04-15 Jul 2005: 2^{nd} Workshop on Scientific Computation, Numerical Analysis and Applications, IISc, Bangalore, India.
- 24 Jan - 04 Feb 2005: 1^{st} Workshop on Scientific Computation, Numerical Analysis and Applications, IISc, Bangalore, India.
- 07-14 Jan 2005: School on Parallel Computing and Applications, IMSc, Chennai, India.
- 06-09 Dec 2004: NBHM (National Board of Higher Mathematics) Workshop on Hydrodynamics, IISc, Bangalore, India.
- 04-09 Jul 2004: 22^{nd} International Conference on Statistical Physics, IISc, Bangalore, India.
- 16-28 Feb 2004: SERC School on Statistical Physics, TIFR, Mumbai, India.
- 11 May - 5 Jul 2002: Visiting Student's Research Programme, NCRA-TIFR, Pune, India.
- 11-17 Feb 2002: 1^{st} ASTROSAT workshop on Pulsar Astrophysics, TIFR, Mumbai, India.

Academic References

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Laboratory for Fluid Dynamics, Pattern Formation and Nanobiocomplexity,
Am Fassberg 17, D-37077 Göttingen, Germany.
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Prof. Rahul Pandit
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Department of Physics, Center for Condensed Matter Theory,
Indian Institute of Science, Bangalore 560 012, India.
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Jet Propulsion Laboratory (NASA)
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