

# Bikash Sahoo

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## Current Position

Assistant Professor, Department of Mathematics, National Institute of Technology, Rourkela

## Education

Ph.D. Applied Mathematics, Indian Institute of Technology, Roorkee, 2008.

*Dissertation:* Study of Some Non-Newtonian Boundary Layer Flows.

*Supervisor:* Prof. H.G Sharma (Emeritus fellow).

M.Sc. Mathematics, Sambalpur University, 2000.

B.Sc. Mathematics, G.M. College, Sambalpur University, 1998.

*Minors:* Physics and Chemistry.

*Honors:* Mathematics.

## Academic Experience

*National Institute of Technology, Rourkela, Department of Mathematics*

Assistant Professor, October, 2007–present.

*Indian Institute of Technology, Roorkee, Department of Mathematics*

Research Assistant, 2003–2007.

## Research

### *Areas of Interest*

Fluid dynamics, Non-Newtonian boundary layer flows, Turbulent flows, Differential equations, Numerical analysis, Computer programming.

### *Scientific Software*

Programming languages: FORTRAN 90/95, C++, MATLAB 7.0

Document preparation language: LATEX, Microsoft Office

Platform: Linux, Windows

### Working Papers

Rotational symmetric flow of a non-Newtonian fluid near a rotating disk, with H.I. Andersson and Sebastien Poncet.

Effects of viscous dissipation, Joule heating on Hiemenz flow and heat transfer of a third grade fluid, with Sebastien Poncet and Fotini Labropulu.

### Communicated works

Sahoo B. and Labropulu F. (2010) Steady Homann flow and heat transfer of a non-Newtonian fluid, *International Journal of Thermal Sciences*.

Sahoo B. and Poncet S. (2010) Flow and heat transfer of a third grade fluid past an exponential stretching sheet, *International Journal of Heat and Mass Transfer*.

Sahoo B. and Poncet S. (2010) Effects of slip on steady Bodewadt flow of a non-Newtonian fluid, *Comptes Rendus Mecanique*.

Sahoo B. (2010) Steady revolving flow and heat transfer of a non-Newtonian fluid, *Central European Journal of Engineering*.

Sahoo B. (2010) Sheet-driven flow of a third grade fluid past an exponentially stretching sheet, *Applied Mathematics Letters*.

### Publications

Sahoo B. (2010) Steady Bodewadt flow of a non-Newtonian fluid. *Int. Jr. of Applied Math. and Stat.*, Accepted.

Sahoo B. (2010) Effects of slip on sheet-driven flow and heat transfer of a non-Newtonian fluid past a stretching sheet. *Comp. Math. Appl.*, doi:10.1016/j.camwa.2011.01.017.

Sahoo B. (2010) Effects of slip on steady Bodewadt flow and heat transfer of an electrically conducting non-Newtonian fluid. *Comm. Nonlin. Sci. Num. Sim.*, doi: 10.1016/j.cnsns.2010.11.023.

Sahoo, B. and Do, Y. (2010). Effects of slip on sheet-driven flow and heat transfer of a third grade fluid past a stretching sheet. *Int. Comm. Heat and Mass Trans.* 37, 1064–1071.

Sahoo, B. (2010). Flow and heat transfer of an electrically conducting third grade fluid past an infinite plate with partial slip. *Meccanica* 45, 319–330.

Sahoo, B. (2010). Effects of slip, viscous dissipation and Joule heating on the MHD flow and heat transfer of a second grade fluid past a radially stretching sheet. *Appl. Maths. Mech.* 31, 159–173.

Sahoo, B. (2009). Effects of partial slip on axisymmetric flow of an electrically conducting viscoelastic fluid past a stretching sheet. *Cent. Eur. Physics* 8, 498–508.

Sahoo, B. (2009). Effects of partial slip, viscous dissipation, Joule heating on Von Karman flow and heat transfer of an electrically conducting non-Newtonian fluid. *Comm. Nonlin. Sci. Num. Sim.* 14, 2982–2998.

Sahoo, B. (2009). Hiemenz flow and heat transfer of a third grade fluid. *Comm. Nonlin. Sci. Num. Sim.* 14, 811–826.

Sahoo, B. and Sharma, H.G. (2007). Effects of partial slip on steady Von Karman flow and Heat transfer of a Non-Newtonian fluid. *Bull. Braz. Math. Soc.* 38, 595–609.

Sahoo, B. and Sharma, H.G. (2007). MHD flow and heat transfer from a continuous surface in uniform free stream of non-Newtonian fluid. *Appl. Math. Mech.* 28, 1467–1477.

Sahoo, B. and Sharma, H.G. (2007). Existence and Uniqueness theorem for flow and heat transfer of a non-Newtonian fluid over a stretching sheet. *Jr. Zhejiang Uni. Sci. A* 8, 766–771.

Sahoo, B. and Sharma, H.G. (2006). Numerical investigation of flow of a non-Newtonian fluid in Rotor-Stator system. *Proc. 9th Annl. Sympo* 11th-12th August, Bangalore, India.

## Conference and Seminar Presentations

Effects of slip on Blasius flow and heat transfer of a non-Newtonian fluid

Poster presentation in International Conference on Nonlinear Dynamical Systems and Turbulence, Department of Mathematics, IISc Bangalore, India, July 17th, 2008.

Steady flow of a viscoelastic fluid over a shrouded rotating disk with radial inflow/outflow

ICIAM-Congress, Jammu, India, March, 2007.

Homann flow and heat transfer of a second grade fluid

International Symposium, IAWS-CFD, Department of Mathematics, IIT Roorkee, India, April 12, 2007.

Numerical investigation of flow of a non-Newtonian fluid in a Rotor-Stator system

9th Annual Symposium on CFD, NAL, Bangalore, India, August 11, 2006.

Analysis of hydromagnetic flow and heat transfer of a non-Newtonian fluid over a stretching sheet

71st Annual Conference of Indian Mathematical Society, Department of Mathematics, IIT Roorkee, India, 2005.

Steady flow of a viscoelastic fluid past a porous circular cylinder and between two circular cylinders

71st Annual Conference of Indian Mathematical Society, Department of Mathematics, IIT Roorkee, India, 2005.

Flow of a non-Newtonian fluid between two circular cylinders

National seminar on Recent Advances in Fluid Dynamics and Applications, Department of Mathematics, Utkal University, BBSR, India, 2005.

## Conferences and Workshops Attended

Instructional School on Partial Differential Equations, TIFR Center for Applicable Mathematics, Bangalore, India December 15– January 6, 2008.

International Conference, TIFR Center for Applicable Mathematics, Bangalore, India, January 7–9, 2009.

Workshop on Nonlinear Dynamical Models and Their Behavior, Department of Mathematics, IIT Roorkee, India March 11–13, 2005.

Symposium on Current Trends in Biomathematics, Department of Mathematics, IIT Roorkee, India March 14, 2005.

Instructional School on Computational PDEs, Department of Mathematics, IIT Bombay, India June 05–24, 2005.

International Conference on Mathematical Fluid Dynamics, Department of Mathematics and Statistics, University of Hyderabad, December 02–07, 2004.

## Professional Activities

Member, American Mathematical Society, 2009–2010.

Editorial Board Membership

Special issue guest editor of International Journal of Applied Mathematics and Statistics

Referee for:

*Communication in Nonlinear Science and Numerical Simulation*, Elsevier

*Chemical Engineering Communications*, Taylor & Francis

*Computers and Mathematics with Applications*, Elsevier  
*Central European Journal of Physics*, Springer  
*Journal of Heat Transfer*, ASME  
*Journal of the Taiwan Institute of Chemical Engineering*, Elsevier  
*International Communications in Heat & Mass Transfer*, Elsevier  
*Applied Mathematics & Computation*, Elsevier  
*International Journal for Applied Electromagnetics & Mechanics*  
*International Journal of Thermal Sciences*, Elsevier  
*Meccanica*, Springer  
*Zeitschrift fur Naturforschung*  
*International Journal of Heat and Mass Transfer*, Elsevier  
*Journal of Applied Mathematics*, Hindwai

## Honors, Awards, & Fellowships

BOYSCAST Fellowship, DST, Government of India to pursue Postdoctoral Research work at NTNU, Norway, 2010–2011.  
 Postdoctoral Fellowship, WCU Project to pursue Postdoctoral Research work at Kyungpook National University, Korea, 2009–2013 (Couldn't continue).  
 Fellowship (GATE) from Ministry of Human Resource & Development, Government of India to pursue PhD at IIT Roorkee 2003–2007.  
 Honors with Distinction in Mathematics in B.Sc., 2008.  
 National Scholarship for outstanding performance in Matriculation Examination, 2003.

## Miscellaneous

Faculty Advisor of Mathematics Club, NIT Rourkela, 2009–2010.  
 Faculty Advisor of M. Sc. students, Department of Mathematics, NIT Rurkela, 2009–2010.  
 Member of DAC (PG & R), Department of Mathematics, NIT Rourkela, 2009–2010.  
 Countries Visited: South Korea, Norway, Germany, Netherlands, Denmark, Sweden, France, Italy.

## Teaching Experience

2007 (October)-On Going  
 Assistant Professor  
 Department of Mathematics  
 National Institute of Technology, Rourkela, India  
 2003-2007  
 Teaching Assistant  
 Department of Mathematics  
 Indian Institute of Technology, Roorkee

*Subjects Taught (During last two years)*

Post Graduate

MA-507: Metric Spaces,

MA-521: Programming with C++,

MA-502: Measure Theory

Under Graduate

MA-101: Differential Equations,

MA-102: Linear Algebra, Vector Calculus, Fourier Series,

MA-201: Probability & Statistics, Numerical Analysis,

MA-202: PDEs & Complex Analysis

## References

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Dr. H.I. Andersson

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