AEKTA AGGARWAL
Indian Institute of Management Indore,
Prabandh Shikhar,RauPithampur Road,Indore, Madhya Pradesh, India–453356
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Phone:+919685815180,+919742734973

Career Countour

Assistant Professor, Mathematics   July 2015–Present
Operations Management and Quantitative Techniques,IIM Indore
Courses Taught: Integral Calculus, Linear Algebra

Scientific Researcher in Applied Mathematics   March 2014–February 2015
Team EPI OPALE, INRIA Sophia Antipolis Méditerranée
Advisor: Paola Goatin, Rinaldo M. Colombo
Work: Developed finite volume numerical schemes for non–local systems of conservation laws in multi dimensions with applications specific to pedestrian flows. The numerical simulations on one and two dimensions were performed on MATLAB and Python.

Teaching Assistant   January 2013–May 2013
TIFR CAM, Bangalore
Subject: Computational Methods for Partial Differential Equations

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Education

Ph.D. in Applied Mathematics   June 2010–July 2014
Centre for Applicable Mathematics, Tata Institute of Fundamental Research, Bangalore
Advisor: Prof. G.D.Veerappa Gowda
Thesis Title: Numerical methods for a Hyperbolic system of balance laws arising in granular matter theory

- Studied some mathematical models for dynamics of granular matter, based on systems of hyperbolic conservation laws with source terms and proposed stable numerical schemes for the same. The numerical simulations on one and two dimensions were performed on MATLAB.

- Finite volume schemes for scalar and systems of hyperbolic conservation laws

- Proficiency in programming languages like MATLAB, Scilab.

M.Phil. in Mathematics   January 2009–May 2010
Centre for Applicable Mathematics, Tata Institute of Fundamental Research, Bangalore
Advisor: Prof. G.D.Veerappa Gowda
Thesis Title: Applications of Viscosity Solutions and Conservation Laws

- Vanishing viscosity method and theory of viscosity solutions for Hamilton Jacobi Equations

- Numerical schemes for Hamilton Jacobi Equations

Masters of Sciences in Mathematics   August 2006–August 2008
Centre for Applicable Mathematics, Tata Institute of Fundamental Research, Bangalore
Score: 75%

Bachelor of Arts in Mathematics   August 2003-March 2006
Lady Shri Ram College for Women, University of Delhi
Score: 84.2%

All India Senior School Certificate Examination (AISSCE) March 2003
conducted by the Central Board of Secondary Education (CBSE), India
Aggregate score Class XII: 89.8%
Aggregate score Class X: 96.4%

Research Interests
Partial Differential Equations, Hyperbolic Conservation Laws, Theory and Numerics
Numerical Analysis, Mathematical Modeling and Scientific Computation

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Publications

1. A. Aggarwal, R. M. Colombo, and P. Goatin, Nonlocal systems of conservation laws in several space dimensions, SIAM Journal on Numerical Analysis, 53(2), 963–983,(2015). (Impact Factor, 1.788)

2. A. Adimurthi, A., A. Aggarwal, and G.D. Veerappa Gowda. Godunov-type numerical methods for a model of granular flow, Journal of Computational Physics, 305, 1083–1118,(2016).(Impact Factor, 2.434)

3. A. Aggarwal,and P. Goatin, Crowd Dynamics through non-local conservation laws, Bulletin of the Brazilian Mathematical Society, New Series, 47(1), 37–50, (2016). (Impact Factor, 0.488)

4. A. Adimurthi, A., A. Aggarwal, and G.D. Veerappa Gowda. Godunov-type numerical methods for a model of granular flow on open tables with walls, (Accepted in Communications in Computational Physics). (Impact Factor, 1.943)

Talks and Presentations
Fifth Chilean Workshop on Analysis of Partial Differential Equations January 11–15, 2016
Chile, Concepcion (Workshop)
"Godunov–type numerical methods for a model of granular flow for partially open tables" (Talk)
International Conference on Current Trends in PDEs: Computations December 28–31, 2015
South Asian University, New Delhi (Conference)
"Applications of Non-Local Conservation Laws: Crowd Dynamics" (Talk)
Seminar Talk
Department of Mathematics, La Sapienza, Università di Roma December 2, 2014
"Convergence of a Finite Volume Scheme for Nonlocal Conservation Laws in Several Space Dimensions"
XV International Conference on Hyperbolic Problems: Theory, Numerics and Applications
HYP2014 July 28–August 1, 2014
IMPA, Rio di Janerio, Brazil (Conference Talk)
"Convergence of a Finite Volume Scheme for Nonlocal Conservation Laws in Several Space Dimensions"
HYP2012 - 14th International Conference on Hyperbolic Problems June 25-29, 2012
University of Padova, Italy (Conference)
"Numerical Scheme for a Model of Granular Matter" (Poster)
Workshop on Modeling, optimization and simulation of complex fluid flow June 20-22, 2012
TU Darmstadt, Germany (Workshop)
"Numerical Scheme for a Model of Granular Matter" (Talk)

Conferences and Workshops
Numerical methods for PDEs: optimal control, games and image processing, Conference on the occasion of Maurizio Falcones 60th birthday 4–5 December 2014

Università di Roma, La Sapienza

IFCAM Summer School on Numerics and Control of PDEs 22 July2 August 2013
Indian Institute of Science, Bangalore

Compact course on Discontinuous Galerkin method for time-dependent convection dominant PDEs 4–5 July 2013
TIFR Centre for Applicable Mathematics, Bangalore

International Conference on Conservation Laws and Applications 1–3 July 2013
TIFR Centre for Applicable Mathematics, Bangalore

Workshop on Theoretical and Computational Aspects of Nonlinear Waves 27 May–31 May 2013
Indian Institute of Technology, Bombay

Instructional Workshop on Finite Element Methods 2–13 July 2012
TIFR Centre for Applicable Mathematics, Bangalore

TIFR Centre for Applicable Mathematics, Bangalore,*Panorama Lecture Series given by Prof. Maria Esteban* 26 October–09 November 2012
TIFR Centre for Applicable Mathematics, Bangalore

Course in deal.II, a C++ program library for adaptive finite elements October 2012
TIFR Centre for Applicable Mathematics, Bangalore

Conference on Hyperbolic Conservation Laws and Continuum Mechanics May 12–14, 2011
The Divison of Applied Mathematics, Brown University

Recent Trends in Non Linear Elliptic PDEs January 5-7, 2011
TIFR Centre for Applicable Mathematics, Bangalore

ICM Satellite Conference on PDE and Related Topics August 13–17, 2010
TIFR Centre for Applicable Mathematics, Bangalore

International Congress of Mathematicians, Hyderabad August 19–27, 2010

Advanced Instructional School on Partial Differential Equations December 15,2008–January 6, 2009
TIFR Centre for Applicable Mathematics, Bangalore
International Bimoedical Modeling School and Workshop

Recent Trends in Non Linear Elliptic PDEs February 27-March 3, 2008
National Centre for Biological Sciences

Bio–Math Summer School on Stochastic Differential Equation Models with Applications to the Insulin-Glucose System and Neuronal Modelling August 3-16, 2008
Department of Mathematical Sciences,University of Copenhagen

Scholarships and Awards

Recipient of NTS (National Talent Research Scholarship) since 2001

Recipient of NBHM(National Board of Higher Mathematics) scholarship for a 3 month research visit to Brown University, 2011

Recipient of various travel grants from funding agencies in India and abroad to attend workshops, schools and conferences in India and abroad

Recipient of Student of the Year award various times in school and was awarded tution free waiver in Class 10-12 for being the school topper

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Extracurricular Activities

Student Representative for the Canteen Committee of TIFR CAM, 2007-08

Part of the organizers of the Founder's Day, TIFR CAM 2006, 2007 and the Inaugration Day, 2006

References

Prof. G.D.Veerappa Gowda
Centre for Applicable Mathematics, Tata Institute of Fundamental Research, Bangalore, INDIA. Email : gowda@math.tifrbng.res.in

Prof. A. Adimurthi
Centre for Applicable Mathematics, Tata Institute of Fundamental Research, Bangalore, INDIA. Email : aditi@math.tifrbng.res.in

Professor Rinaldo M. Colombo
INdAM Unit, University of Brescia, Italy
Email : rinaldo.colombo@unibs.it

Personal Information

Date of Birth: 10.08.1985
Place of Birth: Faridabad, India
Age: 30 years, 9 months