Bankim Chandra Mandal

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Research

2016 – 2017: Research Associate, Michigan State University, USA. (Supervisor: Prof. Andrew Christlieb).
2015 – 2016: Post-doctoral Research Fellow, Michigan Technological University, USA. (Supervisor: Prof. Benjamin Ong).

2010 – 2014: Ph.D. in Mathematics, University of Geneva, Switzerland. Thesis title: *Convergence Analysis of Substructuring Waveform Relaxation Methods for Space-time Problems and Their Application to Optimal Control Problems* (Supervisor: Prof. Martin J. Gander).

Research Interest

Numerical Analysis and Partial Differential Equations.
Scientific Computing.
Space-time Domain Decomposition and Parallel Computing.

Teaching

Taught MTH-133 Calculus-II to undergraduate students (class strength: 34) in Fall Semester 2016 in Michigan State University as a full time instructor.

Academic Preparation

Degree	Board/University	Year	Percentage
Ph.D.	University of Geneva, Switzerland	2014	--------
M.Sc.	IIT Bombay, Mumbai	2010	8.66/10
B.Sc. (Honors)	R.K. Mission Vidyamandira, (Calcutta University)	2008	90.12
10+2	W.B.C.H.S.E	2005	80.90
Matriculation	W.B.B.S.E	2003	85.25

Publications

- *A Time-Dependent Dirichlet-Neumann Method for the Heat Equation*, Mandal BC, Domain Decomposition Methods in Science and Engineering XXI, LNCSE, Vol. 98, Springer-Verlag, p. 467- 475, 2014.
- *Dirichlet-Neumann and Neumann-Neumann Waveform Relaxation for the Wave Equation*, Gander MJ, Kwok F, Mandal BC, Domain Decomposition Methods in Science and Engineering XXII, LNCSE, Vol. 104, Springer-Verlag, 2015.
- *Dirichlet-Neumann and Neumann-Neumann Waveform Relaxation Algorithms for Parabolic Problems*, Gander MJ, Kwok F, Mandal BC, Electronic Transactions on Numerical Analysis, Vol. 45, p. 424-456, 2016.
- *Neumann-Neumann Waveform Relaxation Algorithm in Multiple Subdomains for Hyperbolic Problems in 1D and 2D*, Mandal BC, Numerical Methods for Partial Differential Equations, DOI 10.1002/num.22112, 2016 (arXiv:1507.04008).
- *Dirichlet-Neumann Waveform Relaxation Method for the Heat and Wave Equations in Multiple subdomains*, Gander MJ, Kwok F, Mandal BC, to appear, (arXiv:1507.04011).
- *Pipeline Implementations of Neumann-Neumann and Dirichlet-Neumann Waveform Relaxation Methods*, Mandal BC, Ong BW, to appear in Numerical Algorithms (arXiv:1605.08503).
- *Convergence of Substructuring Methods for Elliptic Optimal Control Problems*, Gander MJ, Kwok F, Mandal BC, to appear in LNCSE, 2017.

Scientific Talks & Activities

- *Talk:* A Convergence Analysis for DNWR and NNWR; March '12, Numerical Analysis Seminar, University of Geneva.
- *Talk:* DNWR for the time Dependent Heat Equation; April '12, Swiss Numerical Colloquium, Bern, Switzerland.
- *Talk:* DNWR for the time Dependent Heat Equation; June '12, 21st International Domain Decomposition Methods Conference, INRIA, Rennes, France.
- *Talk:* DNWR for the Time-Dependent Problems; September 1-6 '13, Domain Decomposition Methods for Optimization with PDE Constraints, Ascona, Switzerland.
- *Talk:* Substructuring Waveform Relaxation Methods for the Wave Equation; September 16-20 '13, 22nd International Domain Decomposition Methods Conference, USI, Lugano, Switzerland.
- *Talk:* Convergence of Substructuring Methods for Optimal Control Problems with PDE Constraints; April '14, Swiss Numerical Colloquium, Zurich, Switzerland.
- *Talk:* Convergence Behaviour of DNWR, NNWR for Optimal Control Problems; April '15, Applied Mathematics Seminar, Michigan Technological University, USA.
- *Invited Talk:* Domain Decomposition Methods for Hamilton-Jacobi Equations; October '15, Applied Mathematics Seminar, Department of Mathematical Sciences, Michigan State University, USA.

- *Talk:* Pipeline Implementations of DNWR and NNWR algorithms; February '17, 24th International Domain Decomposition Methods Conference, Svalbard, Norway.
- *Poster:* poster at the Swiss Numerics Colloquium 2011, USI, Lugano, Switzerland.
- *Poster:* poster at the SIAM CSE 2017, Atlanta, USA.
- *Poster:* poster at the Swiss Numerics Colloquium 2013, EPF Lausanne, Switzerland.
- *Poster:* poster at the CADMOS Activity Days 2013, Leysin, Switzerland.

Major Academic Achievements

- Gold medallist in B.Sc. for obtaining Highest marks in Mathematics (Hons.) in Calcutta University, India (2008).
- Awarded with Merit Scholarship by National Board of Higher Mathematics (NBHM) during M.Sc. in IIT Bombay (2009-2010).
- Awarded with Student Research Fellowship by Indian Academy of Sciences (IAS) for doing a summer internship in Indian Institute of Technology, Madras (2009).
- Secured All India Rank - 3 in CSIR-NET in Mathematics (June, 2010).
- Secured All India Rank – 12 in GATE in Mathematics (2010).

Extracurricular Activities

- Cultural Secretary (Mathematics Department) for the session 2009-2010.
- Received Excellence Award in Annual Drama Competition in R.K.Mission Vidyamandira, Belur Math in 2008.
- Winner in the short film-making competition in IIT Bombay, 2009.
- Received 2nd Prize in Inter-school Parliamentary drama competition in school, 2002.
- National Cadet Corps (NCC) at R.K. Mission Vidyamandira, Belur Math under 23 Bengal BN NCC Branch and NCC B Certificate holder.
- Done *Bratachari* (A Cultural Training) in high school and *Bratachari* certificate holder.
- Founder member of an India-based NGO 'Uttaran, a leap forward' to support education of needy students.

References

Prof. Martin J. Gander
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Prof. Felix Kwok
Hong Kong Baptist University, Hong Kong
Email: felix_kwok@hkbu.edu.hk

Prof. S. Baskar
IIT Bombay, Mumbai, India
Email: baskar@math.iitb.ac.in

Prof. Benjamin Ong
Michigan Technological University, USA
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