



Bankim Chandra Mandal

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Research

2016 – present: 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.

Education

| Degree | Board/University | Year | Percentage |
|-----------------|---|------|------------|
| Ph.D. | University of Geneva, Switzerland | 2014 | ----- |
| M.Sc. | IIT Bombay, Mumbai | 2010 | 8.66/10 |
| B.Sc. (Honours) | 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, (arXiv:1311. 2709).
- *Neumann-Neumann Waveform Relaxation Algorithm in Multiple Subdomains for Hyperbolic Problems in 1D and 2D*, Mandal BC, to appear in Numerical Methods for Partial Differential Equations (arXiv:1507.04008).
- *Dirichlet-Neumann Waveform Relaxation Method for the Heat and Wave Equations in Multiple subdomains*, Gander MJ, Kwok F, Mandal BC, Submitted to BIT Numerical Mathematics, (arXiv:1507.04011).
- *Pipelined Dirichlet-Neumann Waveform Relaxation and pipelined Neumann-Neumann Waveform Relaxation Methods for the Parabolic Problems*, Mandal BC, Ong BW, preprint.
- *A RIDC-Optimized Schwarz space time method for time dependent PDEs*, Mandal BC, Ong BW, Haynes RD, preprint.

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 Behavior of DNWR and NNWR methods for Space-time PDEs and Their Application to 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.

- *Poster:* Presented a poster at the Swiss Numerics Colloquium 2011, USI, Lugano, Switzerland.
- *Poster:* Presented a poster at the Swiss Numerics Colloquium 2013, EPF Lausanne, Switzerland.
- *Poster:* Presented a poster at the CADMOS Activity Days 2013, Leysin, Switzerland.

Major Academic Achievements

- Gold medalist 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

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IIT Bombay, Mumbai, India
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