

Pravir K. Dutt

Curriculum Vitae

Contact Information

Department of Mathematics & Statistics
Indian Institute of Technology Kanpur
Kanpur-208016
UP, India

Phone(Office): +91-512-2597074

Phone(Residence): +91-512-2598594

pravir@iitk.ac.in

<http://home.iitk.ac.in/~pravir/>

<http://www.iitk.ac.in/math/faculty/pravir>

Research Interests

Numerical Solution of Partial Differential Equations

Spectral Element Methods

Fluid Mechanics

Parallel Computing

Education

Ph.D., Mathematics, 1981-85
University of California, Los Angeles
USA

Thesis Adviser: Prof. Stanley Osher

M.Sc. (Integrated), Mathematics, 1975-80
Indian Institute of Technology Kanpur
Kanpur-208016, India

Employment

2001–Till Date	Professor Department of Mathematics & Statistics, IIT Kanpur Kanpur-208016, India
1992–1999	Associate Professor Department of Mathematics & Statistics, IIT Kanpur Kanpur-208016, India
1989–1992	Assistant Professor Department of Mathematics & Statistics, IIT Kanpur Kanpur-208016, India
1987–1989	Lecturer Department of Mathematics & Statistics, IIT Kanpur Kanpur-208016, India

Publications

Journal Papers

- Manoj K. Rajpoot, T.K. Sengupta and Pravir K. Dutt (2010): Optimal time advancing dispersion relation preserving schemes; *J. Computational Physics*, Vol. 229, 3623-3651.
- N. Kishore Kumar, P.K. Dutt and C.S. Upadhyay (2009): Nonconforming spectral/ hp element methods for elliptic systems; *Journal of Numerical Mathematics*, Vol. 17, No. 2, 119-142.
- Pravir Dutt and Subir Singh Lamba (2009): Domain decomposition methods for hyperbolic problems; *Proc. Indian Acad. Sci. (Math. Sci.)*, Vol. 119, No. 2, 231-249.
- P. Dutt, P. Biswas and G.N. Raju (2008): Preconditioners for spectral element methods for elliptic and parabolic problems; *Journal of Computational and Applied Mathematics*, Vol. 215, Issue 1, 152-166.
- P. Dutt, P. Biswas and S. Ghorai (2007): Spectral element methods for parabolic problems; *J. Comput. Appl. Math.*, 203, 461-486.
- P.K. Dutt, N. Kishore Kumar and C.S. Upadhyay (2007): Nonconforming $h - p$ spectral element methods for elliptic problems; *Proc. Indian Acad. Sci. (Math. Sci.)*, Vol. 117, 109-145.
- P. Dutt and S. Tomar (2003): Stability estimates for $h - p$ spectral element methods for general elliptic problems on curvilinear domains; *Proc. Indian Acad. Sci. (Math. Sci.)*, Vol. 113, No. 4, 395-429.
- P. Dutt, S. Tomar and B.V.R. Kumar (2002): Stability estimates for $h - p$ spectral element methods for elliptic problems; *Proc. Indian Acad. Sci. (Math. Sci.)*, Vol. 112, No. 4, 601-639.
- S.K. Tomar, P. Dutt and B.V. Ratish Kumar (2002): An efficient and exponentially accurate parallel $h - p$ spectral element method for elliptic problems on polygonal domains - The Dirichlet case; *Lecture Notes in Computer Science 2552, High Performance Computing, Springer Verlag*.
- P. Dutt and S. Bedekar (2001): Spectral methods for hyperbolic initial boundary value problems on parallel computers; *Jour. Comp. Appl. Math.*, 134, 165-190, 2001.
- S.C.S. Rao, P. Dutt and M.K. Kadalbajoo (2000): A parallel algorithm for banded linear system, *Parallel Algorithms Appl.*, Vol. 14(3), 235-252.
- P. Dutt (1999): Spectral methods for initial boundary value problems with nonsmooth data; *Numer. Math.*, 81, 323-344.
- P. Dutt and A.K. Singh (1994): The Galerkin-Collocation method for hyperbolic initial boundary value problems; *Jour. Comp. Phy.*, Vol. 112, 211-225.
- Pravir K. Dutt and A.K. Singh (1993): Spectral methods for periodic initial boundary value problems with nonsmooth data; *Mathematics of Computation*, 61, No. 204, 645-658.
- P. Dutt (1990): Spectral methods for initial boundary value problems- An alternative approach; *SIAM J. Num. Anal.*, Vol. 27, 885-903.
- Sholomo Ta'asan and Pravir Dutt (1990): Parameter estimation problem for distributed systems using a multigrid method; *Quart. Appl. Math.*, Vol. XLVIII, No. 2.
- S. Abarbanel, P. Dutt and D. Gottlieb (1989): Splitting methods for low Mach number Euler and Navier-Stokes equations; *ICASE Report No. 87-30*, May 1, 1987, 27 pages. *Computers & Fluids*, Vol. 17(1), 1-12.

- P. Dutt (1989): Stability and convergence of spectral methods for hyperbolic initial-boundary value problems. *Mathematics of Computation*, 53, no. 188, 547-561.
- P. Dutt and S. Ta'asan (1989): A spline-based parameter estimation technique for static models of elastic structures; *Applied Numer. Math.*, Vol. 5, No. 3, pp. 161-175.
- P. Dutt (1988): Stable boundary conditions and difference schemas for Navier-Stokes equations; *SIAM J. Numer. Anal.*, Vol. 25(2), 245-267.
- S.I. Hariharan and P.K. Dutt (1988): Acoustic gravity waves: a computational approach; *Applied Numerical Mathematics*, Vol. 4(6), 491-506.

Technical Reports

- Abarbanel Saul, Pravir Dutt and David Gottlieb (1987): Splitting methods for low Mach number Euler and Navier-Stokes equations; *ICASE Report No. 87-30*, May 1, 1987, 27 pages, NASA Langley Research Center.
- S.I. Hariharan and P.K. Dutt (1987): Acoustic gravity waves: A computational approach; *ICASE Report No. 87-19*, March 24, 1987, 26 pages, NASA Langley Research Center.
- Sholomo Ta'asan and Pravir Dutt (1986): Parameter estimation problem for distributed systems using a multigrid method; *ICASE Report No. 86-65*, October 8, 1986, 19 pages, NASA Langley Research Center.
- P. Dutt and S. Ta'asan (1986): A spline-based parameter estimation technique for static models of elastic structures; *ICASE report – no. 86-64*, 33 pages, NASA Langley Research Center.
- P. Dutt (1986): A Riemann solver based on a global existence proof for the Riemann problem. *ICASE Report No. 86-3*, January 17, 1986, 12 pages, NASA Langley Research Center.
- P. Dutt (1985): Stable boundary conditions and difference schemes for Navier-Stokes equations; *ICASE Report No. 85-37*, August 1, 1985, 86 pages, NASA Langley Research Center.

Ph.D. Students (Graduated)

Name (Year of Ph.D. Completion)

Akhlaq Husain (2011)

Lokendra Balyan (2009)

G. Naga Raju (2009)

Pankaj Biswas (2009)

Kishore Kumar Naraparaju (2008)

Subir Singh Lamba (2005)

Satyendra Kumar Tomar (2001)

Sajju Chandra Sekhara Rao (1995)

Smita Madhukar Joshi (1994)

Ashutosh Kumar Singh (1993)

Ph.D. Students (Current)

Name

Manoj Rajpoot

Subhashree Mohapatra

Arbaz Khan

Miscellaneous

Citizenship: Indian

Date of Birth:

October 13, 2011