



NATIONAL PROGRAMME ON DIFFERENTIAL EQUATIONS THEORY, COMPUTATION & APPLICATIONS
in collaboration with

Centre International de Mathématiques Pures et Appliquées (CIMPA)

presents



NPDE : ADVANCED LEVEL TRAINING PROGRAMME & CIMPA RESEARCH SCHOOL ON

“CURRENT TRENDS IN COMPUTATIONAL METHODS FOR PDEs”

(Funded by NPDE-TCA (DST), CIMPA, ICERM-VIMSS, ICTP, IMI-IISc, NBHM, UNESCO)

Venue: Department of Mathematics, Indian Institute of Science, Bangalore.

Advanced Level Training Programme : June 24th to July 7th, 2013.

CIMPA Research School : July 8th to 19th, 2013.



IISc Bangalore in collaboration with IIT Bombay is pleased to announce Advanced Level Training Programme under the auspices of NPDE-TCA combined with CIMPA research school on “Currents trends in computational methods for PDEs” at IISc Bangalore. The advanced training programme will focus on a training in PDEs and FEM and this will be a pre-requisite for the research school.

AIM:

Numerical analysis, simulation, and scientific computing for the solution of partial differential equations (PDEs) have been cornerstones of applied mathematics over the last fifty years. Indeed, the study of computational methods for PDEs is a key tool for the development of science and technology. Hence, it is important to have a deep understanding of the classical and new methodologies used in numerical methods. The aim of the research school is to provide the participants an overview of the techniques that allow one to address the computational challenges that are encountered in different applications. It will be preceded by advanced level training programme of NPDE-TCA.

TARGET AUDIENCE :

- Young Mathematics teachers from colleges / universities.
- Final year M.Sc students, students pursuing Ph.D.
- Post doctoral researchers and young faculty in the research area.
- B.Tech. / B.E. / M.Tech students who have completed Post-graduate Level Training Programme.
- Scientists from industry and research & development organizations with appropriate mathematical background.

MAIN TOPICS :

NPDE Advanced Training Programme : Theory of Distributions / Sobolev Spaces, Elliptic, parabolic, hyperbolic PDE's, Theory of First Order PDEs, Finite Element and Mixed Finite Element Methods, Adaptive FEM and Discontinuous Galerkin Methods, Finite Element Methods for Evolutionary PDEs, Finite Element Methods for Stokes Problem, Multigrid Methods/Domain Decomposition Methods, Spectral Methods/hp Finite Elements, Numerical Methods for Hyperbolic Problems.

CIMPA Research School: Adaptive Finite Element Methods, C^0 Interior Penalty Methods, Mixed Finite Element Methods, Higher order Finite element methods: Implementation, Post-processing and Adaptivity, Numerical methods for non-linear hyperbolic PDEs and Numerical techniques for PDEs with random input data.

RESOURCE PERSONS:

NPDE Advanced Training Programme : Blanca Ayuso de Dios (CRM, Barcelona, Spain); Pravir Dutt (IIT Kanpur, India); Sashikumar Ganesan, Thirupathi Gudi, A.K. Nandakumaran, Phoolan Prasad (IISc Bangalore, India); G.D. Veerappa Gowda, Mythily Ramaswamy (TIFR-CAM Bangalore, India); Neela Nataraj, Amiya K. Pani (IIT Bombay).

CIMPA Research School : Mark Ainsworth (Brown University, USA); Susanne C. Brenner and Li-yeng Sung (Louisiana State University, USA); Daniele Boffi (Universita' degli Studi di Pavia, Italy); Lucia Gastaldi (Universita' degli Studi di Brescia, Italy); Andreas Veiser (Universita' degli Studi di Milano, Italy); Siddhartha Mishra (Eidgenössische Technische Hochschule (ETH), Switzerland); Fabio Nobile (Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland); Raul Tempone (King Abdullah University of Science and Technology (KAUST), Saudi Arabia).

CO-ORDINATORS :

Blanca Ayuso de Dios (Centre de Recerca Matematica (CRM), Spain) and Thirupathi Gudi (IISc Bangalore, India).

ORGANIZING COMMITTEE:

Blanca Ayuso de Dios (CRM, Barcelona, Spain); Sashikumar Ganesan, Thirupathi Gudi, A.K. Nandakumaran (IISc Bangalore, India) and Neela Nataraj (IIT Bombay, India).

PARTICIPATION :

Participants from India and developed nations may apply with their CV by email to: cmpde13@gmail.com. Ph.D Students should arrange a recommendation letter from their supervisor which can be directly sent to the above email id. Participants from neighboring developing nations (eg. Pakistan, Sri Lanka, Bangladesh, Bhutan, Nepal, Vietman, Camboya etc.) may apply directly at <http://www.cimpa-icpam.org/>. The Research School will consist of participants from India (25 participants), from neighboring countries of India (15 participants) and from developed countries (10 participants).

ACCOMMODATION :

Participants will be accommodated in IISc visitors accommodations. Send a request to the above email-id if accommodation is required.

CONTACT :

Thirupathi Gudi, Coordinator (CIMPA Research School), Department of Mathematics, Indian Institute of Science, Bangalore-560 012.

Email: gudi@math.iisc.ernet.in (<http://math.iisc.ernet.in/~gudi/cimpa.html>)

*Last date of receipt of application: **March 27, 2013.***

Selection of participants will be based on their academic records and recommendation letters.

*List of selected participants will be put on the NPDE-TCA web page (<http://www.math.iitb.ac.in/~npde-tca/>) on **March 30, 2013.***

FINANCIAL SUPPORT :

- Participants from India will be provided free boarding, lodging and at most a three tier A/c train fare by the shortest route.
- Participants from the developing nations will be provided free boarding, lodging and up to EUR 400 (or the actual fare if it is lesser than EUR 400) travel support towards airfare.
- Participants from developed nations will pay by their own for their boarding, lodging and travel.