Advanced Workshop on Hyperbolic PDEs: Theory, Numerics & Applications
and
Conference on Partial Differential Equations
(HPTNA-2014 & CPDE-2014)
at
THE LNM INSTITUTE OF INFORMATION TECHNOLOGY, JAIPUR
December 01-11, 2014
(Sponsored by NBHM[*], DST[*], NPDE[*], LNMIIT)

The LNM Institute of Information Technology, Jaipur is organizing an *Advanced Workshop on Hyperbolic PDEs: Theory, Numerics and Applications* during **December 01-09, 2014** followed by a *Conference on Partial Differential Equations* during **December 10-11, 2014**. The events are likely to be sponsored by NBHM/DST/NPDE/LNMIIT.

AIM:

The goal of the workshop is to bring together experts as well as researchers who are interested in hyperbolic PDEs from different perspectives, including theory, numerical analysis, algorithms and applications. The selected participants are likely to have common research interest but with diversified background, thereby bringing under wider range of expertise. The workshop consists of
   (1) elementary and survey talks on analysis of hyperbolic PDEs,
   (2) research talks on recent advances,
   (3) open discussions for possible future collaborations.
We believe that an intense 8 day workshop in an invigorating environment of the LNMIIT Jaipur hopes to provide wonderful opportunities for communication and further collaborations among participants, as well as exchange of new ideas between sub-fields and into applications. The prime objective of the workshop is to introduce the basic concepts of the theory and numerics of hyperbolic PDEs and explore the importance, difficulties and challenges of this innovative research field to M.Sc. students, research students (preferably with adequate knowledge on PDEs, functional analysis, numerics etc.), post-doctoral fellows and interested faculty.

The **conference** has the objective of bringing together researchers, post-doctoral fellows and students with interests in theoretical and computational aspects of PDEs and of related models in applied sciences. We expect the conference to provide an inspiring and productive forum: to get acquainted with the recent developments in partial differential equations, to stimulate and exchange new ideas from different disciplines and to formulate new challenging problems that may have impact on diverse fields of applications.

TARGENT AUDIENCE:

M.Sc. students, Research Scholars, Post-Doctoral Fellows, Young Faculty Members and other interested participants with a background in Partial Differential Equations/Numerical Methods from universities, institutions and R&D Organizations.

MAIN TOPICS (WORKSHOP):

Theoretical Aspects of hyperbolic conservation laws: first order quasilinear equations; advection equations, weak solutions and entropy, system of equations, basic numerical concepts for hyperbolic equations, finite difference methods/finite volume methods for one-dimensional systems. Godunov's method, the Riemann problem for linear systems, monotone schemes for conservation laws with discontinuous flux, Riemann problem for kinematical conservation laws and applications, characteristic Fast Marching Method, numerical

methods for hyperbolic conservation law, Discontinuous Galerkin Methods (DGM) for conservation laws: theory and computation, GPU Computing.

RESOURCE PERSONS FOR WORKSHOP:

Prof. V. Raghavendra (LNMIIT Jaipur), Prof. Adimurthi (TIFR CAM, Bangalore), Prof. A.S. Vasudeva Murthy (TIFR CAM, Bangalore), Prof. P. S. Datti (TIFR CAM, Bangalore), Prof. G.D.V. Gowda (TIFR CAM, Bangalore), Prof. A. K. Pani (IIT Bombay), Prof. S. Sundar (IIT Chennai), Prof. Raghurama Rao (IISc Bangalore), Prof. Shivaji Ganesh (IIT Bombay), Prof. S. Bhaskar (IIT Bombay), Prof. Harish Kumar (IIT Delhi).

RESOURCE PERSONS FOR CONFERENCE (Tentative):

Prof. G.D.V. Gowda (TIFR CAM, Bangalore), Prof. K.T. Joseph (TIFR CAM, Bangalore), Prof. Adimurthi (TIFR CAM, Bangalore), Prof. M. Ramaswamy (TIFR CAM, Bangalore), Prof. A. K. Pani (IIT Bombay), Prof. M. K. Kadalbajoo (IIT Kanpur), Prof. Pravir K. Dutt (IIT Kanpur), Prof. B. V. Rathish Kumar (IIT Kanpur), Prof. S. Sundar (IIT Chennai), Prof. Raghurama Rao (IISc Bangalore), Dr. Ajit Patel (LNMIIT Jaipur), Dr. Akhlaq Husain (LNMIIT Jaipur), Dr. Vikas Gupta (LNMIIT Jaipur).

PATRON:

Prof. S. S. Gokhale, Director, LNMIIT Jaipur

ADVISORY COMMITTEE:

Prof. A. K. Pani (IIT Bombay), Prof. Pravir K. Dutt (IIT Kanpur), Prof. S. Sundar (IIT Chennai), Prof. V. Raghavendra (LNMIIT Jaipur), Prof. Adimurthi (TIFR CAM, Bangalore), Prof. M. K. Kadalbajoo (IIT Kanpur), Prof. M. Ramaswamy (TIFR CAM, Bangalore).

CONVENERS:

Dr. Ajit Patel (LNMIIT Jaipur), Dr. Akhlaq Husain (LNMIIT Jaipur), Dr. Vikas Gupta (LNMIIT Jaipur)

ORGANIZING COMMITTEE:

Dr. Ajit Patel, Dr. Akhlaq Husain, Dr. Vikas Gupta, Dr. Pratibha Garg, Dr. Rasmita Kar, Dr. Manish Garg.

PARTICIPATION:

For participation, please download the required form from the website: http://www.**lnmiit.ac.in** and email the duly filled form to: **hptna.2014@lnmiit.ac.in**. You may also send the signed form by post together with your CV and recommendation letter(s) from your supervisor / HOD to the following contact address.

ABSTRACT SUBMISSION (FOR CONFERENCE):

We urge all the interested researchers to submit their abstracts for contributed talks or for poster presentations in the conference at their earliest convenience using the forms available at http://www.lnmiit.ac.in/. The deadline for abstract submission is September 01, 2014.

REGISTRATION FEE:

There is **no registration fee** for the workshop and the conference.

ACCOMMODATION:

Free lodging and boarding will be provided at LNMIIT campus during the entire duration of the workshop and conference provided the workshop participants stay for the entire duration.

TRAVEL SUPPORT:

We hope to offer travel support either full/partial to all the registered participants depending on the availability of funds from DST/NPDE/NBHM/LNMIIT. Special efforts will be made to provide full travel support to young researchers and students who do not have any financial support from other sources.
*The participants will be intimated as soon as we receive confirmation of the financial support from DST/NPDE/NBHM.

CONTACT PERSON:

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Last Date of receipt of application: ***October 01, 2014***
Selection of participants will be based on academic records and recommendation letters.
*List of selected participants will be put on the web page by **October 05, 2014.***

JAIPUR: THE PINK CITY OF INDIA

Jaipur, the capital of Rajasthan, is one of the rare examples of an 18th century town built after careful planning. It was established by Maharaja Sawai Jai Singh in the year 1727. Jaipur is predominantly known for its musicians, artisans and craftsmen. There are innumerable sagas and stories of the culture, traditions and practices associated with the city of Jaipur. This diverse land of rich culture and heritage is a royal treat for tourists from all over the world. Some of the most popular tourist destinations in Jaipur include: Hawa Mahal - the palace of winds, Amber Fort – capital of erstwhile Jaipur state, Jantar Mantar - the largest working observatory, City Palace - the residence of erstwhile Maharaja of Jaipur, Nahargarh Fort - the hunting residence of erstwhile Maharajas and Jaigarh Fort. Jaipur is located approximately 270 km south of Delhi and 250 km west of Agra and is well connected to other parts of the country through air, rail and road transport. For more information visit http://www.rajasthantourism.gov.in/Home.aspx.