

# PERSPECTIVES IN NONLINEAR DYNAMICS PNLD

26-29 July 2010

Bangalore, India

## Conference Programme

**Monday 26 July 2010**

**Venue : MRC Auditorium, IISc Bangalore**

9:00 : **Registration**

9:00 – 9:20 : **Inauguration - Prof. Spenta Wadia, ICTS**

9:20 – 10:00 : **Antonio Politi**, CNR-ISC, Sesto Fiorentino.  
*Collective behavior in neural networks.*

10:00 – 10:30 : **TEA**

10:30 – 11:00 : **Theo Geisel**, Max-Planck Institute for Dynamics and Self-Organization, Göttingen.  
*Phase Transitions towards Self-Organized Criticality in Neuronal systems*

11:00 – 11:30 : **Sitabhra Sinha**, IISc Chennai  
*Mind, Memory and Modules: Dynamics of Associative Recall in complex Networks with Mesoscopic Organization.*

11:30 – 12:00 : **Nandini Chatterjee-Singh**, National Brain Research Centre, Manesar.  
*Categorization of sounds in the natural environment.*

12:00 – 12:30 : **B. Kahng**, Seoul National University, Seoul  
*First order Percolation Transitions*

12:30 – 14:00 : **LUNCH**

14:00 – 14:30 : **M. Carmen Romano**, University of Aberdeen, Aberdeen.  
*Traffic dynamics of translation: Modelling the synthesis of proteins.*

14:30 – 15:00 : **Somdatta Sinha**, CCMB, Hyderabad.  
*Propagation of extrinsic perturbation in a multi-step biochemical pathway*

15:00 – 15:30 : **Ulrike Feudel**, Carl von Ossietzky University, Oldenburg  
*Coagulation and fragmentation of inertial particles in chaotic advection and random flows*

15:30 – 16:00 : **Sarika Jalan**, NUS, Singapore  
*Universal spectral behaviour on complex networks: Application to gene expression profile.*

16:00 – 16:30 : **TEA**

16:30 – 18:00 : **POSTER SESSION**

**Tuesday 27 July 2010**  
**Venue : MRC Auditorium, IISc Bangalore**

- 9:00 – 9:30 : **Denis Ullmo**, Laboratoire de Physique Théorique et Modèles Statistiques Université Paris Sud.  
*Tunneling in non-integrable systems*
- 9:30 – 10:00 : **Thomas Dittrich**, Universidad Nacional de Colombia, Bogota  
*Classical and Quantum chaotic pumps.*
- 10:00 – 10:30 : **TEA**
- 10:30 – 11:00 : **Andreas Buchleitner**, University of Freiburg  
  
*Transport, disorder and entanglement.*
- 11:00 – 11:30 : **Steven Tomsovic**, Washington State University, Pullman  
*Extreme statistics of random and quantum chaotic states.*
- 11:30 – 12:00 : **Marko Znidaric**, University of Ljubljana, Ljubljana  
*Exact solution for a diffusive non equilibrium steady state of an open quantum chain.*
- 12:00 – 12:30 : **Sergej Flach**, Max-Planck-Institut fuer Physik Komplexer Systeme, Dresden  
*Universal spreading of wave packets in disordered nonlinear systems*
- 12:30 – 14:00 : **LUNCH**
- 14:00 – 14:30 : **Mahendra K Verma**, Indian Institute of Technology, Kanpur  
*Bifurcation and chaos in Rayleigh-Benard convection.*
- 14:30 – 15:00 : **Amita Das**, Institute of Plasma Research, Bhat:  
*Collisionless stopping of current pulses in an inhomogeneous EMHD plasma.*
- 15:00 – 15:30 : **G. Ambika**, IISER Pune  
*Delay/anticipatory synchronization in nonlinear systems using variable delay and reset.*
- 15:30 – 16:00 : **K. Porsezian**, Pondicherry University, Puducherry  
*Soliton induced supercontinuum generation in liquid filled photonic crystal fibers.*
- 16:00 – 16:30 : **TEA**
- 16:30 – 17:00 : **Binoy Goswami**, BARC, Mumbai  
*Role of coupling-induced new attractors in the master-slave synchronization*
- 17:00 – 17:30 : **Punit Parmananda**, IIT Powai  
*Synchronization: The continuing saga*

**Wednesday 28 July 2010**  
**Venue : MRC Auditorium, IISc Bangalore**

- 9:00 – 9:30 : **C. K. Chan**, Academia Sinica, Taipei  
*Synchronization in Growing Heterogeneous Media*
- 9:30 – 10:00 : **Awadhesh Prasad**, University of Delhi, Delhi  
*Universal occurrence of mixed-synchronization in counter-rotating nonlinear coupled oscillators*
- 10:00 – 10:30 : **TEA**
- 10:30 – 11:00 : **Gautam Sethia**, Institute for Plasma Research, Bhat  
*The role of time delays in the synchronization of weakly coupled oscillator systems.*
- 11:00 – 11:30 : **Radha Balakrishnan**, IIMSc Chennai  
*Immortal Solitons in a Strongly Repulsive Bose-Einstein Condensate*
- 11:30 – 12:00 : **F. Atay**, Leipzig  
*Synchronization and the emergence of novel dynamics*
- 12:00 – 12:30 : **M S Santhanam**, IISER Pune  
*Extreme events on complex networks*
- 12:30 – 14:00 : **LUNCH**
- 14:00 – 14:30 : **Umeshkanta Singh**, JNU, New Delhi  
*Excitable nodes on random networks: Structure and dynamics.*  
**T R Krishna Mohan**, C-MMACS, Bangalore  
*Dynamics of metastable breathers in nonlinear chains in acoustic vacuum.*
- 14:30 – 15:00 : **Syamal Dana**, IICB, Kolkata  
*Engineering synchronization of chaotic oscillators*  
**Sekhar Iyengar**, Saha Institute of Nuclear Physics, Kolkata  
*Detection on nonlinearity and chaos in nonlinear plasma oscillations using continuous wavelet transforms.*
- 15:00 – 15:30 : **Janaki Balakrishnan**, University of Hyderabad, Hyderabad  
*Dynamical instabilities and noise in sensory processes.*  
**Bibhu Biswal**, University of Delhi, New Delhi  
*Detection of unstable periodic orbits in biological time series.*
- 15:30 – 16:00 : **Manish Shrimali**, LNM Institute of Information Technology, Jaipur  
*Phase flip bifurcation in conjugate coupled systems*  
**Partha Guha**, Bose Institute, Kolkata  
*The role of the Jacobi Last Multiplier in isochronous systems.*
- 16:00 – 16:30 : **TEA**

- 16:30 – 17:00 : **Ajay Deep Kacchvaha**, IIT Madras  
*Failure tolerance of load bearing hierarchical networks*  
**Anupam Gupta**, IISc Bangalore  
*Two dimensional turbulence with polymer additives*
- 17:00 – 17:30 : **Abhijeet Sonawane**, University of Pune  
*Stochastic switching between attractive and repulsive coupling leads to DP universality class*  
**Garima Saxena**, Delhi University  
*Dynamical effects of integrative time delay coupling*
- 20:00 : **CONFERENCE DINNER**

**Thursday 29 July 2010**  
**Venue : MRC Auditorium, IISc Bangalore**

- 9:00 – 9:30 : **Sanjay Sane**, NCBS, Bangalore  
*Investigating insect flight using multi-disciplinary approaches.*
- 9:30 – 10:00 : **G. Ananthakrishna**, Indian Institute of Science, Bangalore, India.  
*Correlation between stick-slip events and contact charging in dynamics of sliding friction at nano-scales*
- 10:00 – 10:30 : **TEA**
- 10:30 – 11:00 : **Chandan Das Gupta**, Indian Institute of Science, Bangalore  
*Chaos in the Rheology of Complex Fluids*
- 11:00 – 11:30 : **Amit Apte**, TIFR, Bangalore  
*Data assimilation – Interplay between nonlinearity and statistics.*
- 11:30 – 12:00 : **Kiran Kolwankar**, Dept of Physics, R. J. College, Mumbai  
*Learning and structure of neuronal networks*
- 12:00- 12:30 : **V. Balakrishnan**, IIT Madras, Chennai  
*Extreme value statistics in deterministic dynamics*
- 12:40 – 14:00 : **LUNCH**
- 14:00 – 14:30 : **Sutirth Dey**, IISER Pune  
*Dynamics of laboratory populations and metapopulations of *Drosophila melanogaster**
- 14:30 – 15:00 : **Thilo Gross**, Max-Planck-Institut fuer Physik komplexer Systeme, Dresden  
*Eat the specialist: Some results on the stability of 100 billion food webs*
- 15:00 – 15:30 : **Amitabh Joshi**, Evolutionary and Organismal Biology Unit, JNCASR, Bangalore

*Synchrony, constancy, and persistence in two- patch Drosophila metapopulations: effect of self and neighbour stability and migration rate on local and global patterns*

15:30 – 16:00 : **Rama Govindarajan**, JNCASR., Bangalore

*Recent results on hydraulic jumps*

16:00 – 16:30 : **TEA**

16:30 – 17:10 : **Celso Grebogi**, Institute for Complex Systems and Mathematical Biology, King's College,  
University of Aberdeen.

*Fractal Skeletons: The Universality in Death by Starvation*