ICTS | INTERNATIONAL CENTRE for THEORETICAL SCIENCES
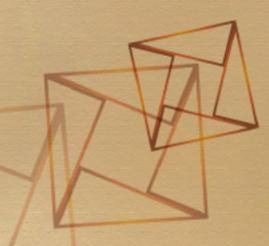
TATA INSTITUTE OF FUNDAMENTAL RESEARCH

SCHOOL AND WORKSHOP ON COCOMPACT IMBEDDINGS, PROFILE DECOMPOSITIONS, AND THEIR APPLICATIONS TO PDE

January 03 - 12, 2012 (conference January 5-8, 2012)

Tata Institute of Fundamental Research Centre For Applicable Mathematics, Bangalore, India

Confirmed participants

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- **Abbas Bahri**
- **Thomas Bartsch**
- **Sun-Yung Alice Chang**
- **Monica Clapp**
- **Juan Dávila**
- **Olivier Druet**
- **Pierpaolo Esposito**
- **Emmanuel Hebey**
- **Stephane Jaffard**
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- **Manuel del Pino**
- **Frederic Robert**
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Convergence of functional sequences, in many cases, cannot be directly obtained from compactness properties, but requires a structural analysis of the defect of compactness. While concentration compactness techniques have been widely adopted since the 1980's, more powerful methods have been developed in the last 15 years and applied by mathematicians working in different disciplines of analysis.

The concentration argument plays a central technical role in elliptic PDE theory, geometric analysis, as well as in the analysis of NLS, wave, and Navier-Stokes equations. The original description of concentration in terms of singular weak limits for sequences of measures has been supplemented by more detailed profile decompositions.

Formalization of the latter on the functional analytic level in terms of wavelet bases and cocompact imbeddings relative to a given group has been used to investigate increasingly diverse noncompact invariances involved in the loss and recovery of compactness. Concurrently, formation of profiles based on wavelet bases, measure-based concentration compactness, and adjacent approaches, such as blow-up methods, continue to develop and are broadly applied.

This program brings together experts in elliptic, dispersive, and geometric PDE, with experts in adjacent branches of analysis, and graduate students from India and abroad. It will combine lectures on current research with mini-courses for graduate students.