

# INDO-FRENCH WORKSHOP on Multifunctional Molecular and Hybrid Devices

A collage of scientific images including a DNA double helix, a hand holding a fiber, a circular ring structure, a 3D molecular model, a blue textured surface with a 100 µm scale bar, a yellow and blue structure with a 500 nm scale bar, a black and white network pattern, and a brown surface with a 10 µm scale bar.

# Welcome

6 – 10 October 2008  
Saclay - France



# Objectives of the Workshop

- Provide a fresh focus
- Share mutual expertise
- Provide in-depth interactions
- Initiate collaborations
  - On the new emerging areas of research on multifunctional molecular and hybrid devices



# Three French Institutes

- **CEA/DSM/IRAMIS**
  - Located in Saclay, 650 people
  - Radiation Matter Interaction/Nanoscience/complex systems
- **CEA/DSM/INAC**
  - Located in Grenoble, 400 people
  - Nanoscience, Cryogenics
- **Univ. Lille/CNRS/IEMN**
  - Located in Lille, 500 people
  - Electronics, nanotechnologies



## Six indian Institutes

- BARC : Bhabha Atomic Research Center
- TIFR : Tata Institute of Fundamental Physics
- SINP : Saha Institute of Nuclear Physics
- RRCAT : Raja Ramanna Centre for Advanced Technology
- IGCAR : Indira Gandhi Centre of Atomic research
- IOP : Institute of Physics



# Location



# Bhabha Atomic Research Center





# An Already Existing Collaboration

- Initiated in 2005
- Three topics covered in 2006
  - « Study of superconductivity in one dimension nanostructures » TIFR: /LSI
  - « Nanoparticles at interfaces » SINP-IRAMIS/SCM
  - « Interfaces, self-assembly and nanophase materials » BARC - IRAMIS/SPCSI
- Study trips in 2006 -2007
- Some exchanges in 2008
  - Dr D. Aswal at IRAMIS/SPCSI
  - Recently awarded at BARC
  - 2 articles, one more pending ....



# 2005 First exchanges

## France wants to build nano ties

Image of France in India campaign is designed to bring its tech and its culture here

**Radhika Dwivedi.** Colaba

If you thought France was just about fashion, cuisine and the language, the 'Image of France in India' campaign launched by the Indo French Chamber of Commerce and Industry (IFCCI) hopes to add to that.

It tries to show how sophisticated France technology is. "France got the first toll road in the world and the first internet banking transaction was made in France," says Arun Nanda, president of IFCCI. "We need to create awareness about these technologies and try to incorporate them here."



■ Pascal Boulanger (extreme right) at the campaign launch —Kamlesh Pednekar.DNA

As part of this campaign, the IFCCI and the Indo-France Technical Association (IFTA) organised a talk on Nanotechnology-smallest applications with the largest potential by Dr Pascal Boulanger (DSM/DRECAM) and Dr Styephane Lenfant (IEMN) at the Royal Bombay Yacht

Club on Tuesday.

"Nanotechnology will be everywhere in the future, it is very upcoming, especially in India where scientists are doing research in this domain. This is an excellent initiative to collaborate with India and help develop it here as well," says

Boulanger about the campaign.

The aim of the Image of France Campaign is to showcase French culture and technology in India. "Indo-French trade is under four billion euros. We hope to double that," says Nanda. The campaign will throw the light on infrastructure, civil engineering, and nuclear engineering, petrochemicals, bio-technology, and aeronautics.

Zubin Kabraji, the IFCCI secretary general, says that they will be organising lectures and inviting speakers from different industries and organise sectoral exhibitions where small technologies from specific industries can be shown. Later this year, they hope to tie up with a French technology company and invite IIT students to get involved in projects. They could even be sent to work in French firms.



# 2007 French Delegation in India





# A Comprehensive programme

- 7 sessions covering all aspects of multifunctional molecular and hybrid devices
  - Fundamentals
  - Processes
  - Applications
    - Information technologies
    - Energy
    - Materials
    - Biology



# A Programme of Exchange

- Discussions during breaks
- Visit of Iramis Laboratories
  - Molecular Chemistry
  - Condensed state Physics
  - Surfaces and Interfaces
  - Atomes and Molecules
- Visit of NEUROSPIN: platform of Neuroimaging
- Visit of Charles LAPICQUE's Lithographs
  - Between Science and Arts
- Visit of Château de Versailles (limited)



**At last ....**

Enjoy the workshop