

ENSEMBLE

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Newsletter of the Indo-French Centre for the Promotion of Advanced Research



Indo-French Centre for Promotion of Advanced Research

Catalysing Partnerships

editor's note

The completion of 25 years of Indo-French Centre for the Promotion of Advanced Research (CEFIPRA) which has become the fulcrum of Indo-French S&T cooperation over last three decades is an important milestone. Over the years, CEFIPRA has not only fostered scientific efforts that create new knowledge, it has played a significant role in deepening the overall bilateral ties between India and France.

As the first such international bilateral S&T cooperation agency set up by India as well as France, CEFIPRA is today recognized as a vibrant platform that synergises the talent, resources, infrastructure, and last but not the least, the passion of Indian and French scientists for creating common global goods.

Since its inception CEFIPRA has strived to and successfully surpassed barriers of culture and language to bring Indian and French scientists to work together in their pursuit of the unknown, be it understanding the mysteries of the universe or finding solutions for diseases like Leishmaniasis. This is reflected in more than 450 joint projects supported by CEFIPRA till date involving a large number of organisations across the S&T spectrum in India and France.

Turning 25, CEFIPRA is charged with a new resolve to not only work harder to achieve its S&T promotion mandate but also to make efforts that bridge the divide between our labs and the market. CEFIPRA recognizes that helping new inventions cross what is often called the "valley of death" and become successful and marketable products is as important as making new discoveries.

In this endeavour to actively engage with CEFIPRA's various stakeholders- old, new and potential, we are pleased to present ENSEMBLE- the bimonthly newsletter of CEFIPRA.

We will be happy if you take a few moments off to send us your feedback for making ENSEMBLE more aligned with our common knowledge and information sharing needs. ●



Debapriya Dutta
Director, CEFIPRA



H  L  NE DUCH  NE
Directrice des
politiques de mobilit  
et d'attractivit  
Minist  re des
Affaires   trang  res

CEFIPRA/IFCPAR is a pioneer. Sponsored by the Governments of India and France, this original institution has greatly contributed to bridge our academic communities and establish links based on mutual benefit and trust.

Since its creation in 1987, the Centre has been instrumental in strengthening the partnership between France and India. Looking back at the 25 years of continuous people to people interactions and joint projects enabled by the Centre, one cannot but have a sense of remarkable accomplishment.

CEFIPRA as an institution perfectly suits the need to synergise the complimenting strengths of Indian and French scientific institutions and to bring them to bear upon and tackle the long list of unmet needs of the present and challenges of the future.

Looking at the challenges ahead, one is all the more convinced of the necessity to join forces. Under the aegis of Department of Science and Technology, Govt. of India and Ministry of Foreign Affairs, Government of France, CEFIPRA/IFCPAR has embarked on the extension of its activities, rallying more research institutions and industries into innovative and ambitious collaborative projects.

Government of France is committed to strengthening ties between S&T institutions/universities in France with institutions with similar mandate on the Indian side. This is going to require an institutional framework that has the capacity to respond to emerging needs in a swift and effective manner. This is where CEFIPRA can be called upon to do, what it takes. ●



T. RAMASAMI
Secretary
Department of
Science & Technology
Government of India

As great democracies of the modern world, India and France are logical partners. India is looked upon by the rest of the world for its strides towards becoming an economic super power. France is a nation that is known for its very significant contributions to the journey of invention and innovation over the years.

Science is an endeavour where collaboration between talent across boundaries is an obvious imperative. To realise full potential of collaborative effort in a knowledge driven domain like S&T requires agile institutions and flexible mechanisms. Indo-French Collaboration in Promotion of Advanced Scientific Research has emerged as one of the role-models for international bilateral scientific cooperation. This has been possible because of a landmark decision taken twenty five years ago by the National leaders of France and India to establish Indo-French Centre for Promotion of Advance Research (IFCPAR).

The journey of French-India collaboration in Science (CEFIPRA) over 25 years has provided rich learning experience. In the process of providing such a vibrant platform, CEFIPRA has endeared itself to the scientific communities of both countries. The organisation has earned its pride and value through the efficiency of its service, transparency of processes and fairness in decisions.

Today, as CEFIPRA celebrates its 25th year Jubilee, the march of the Centre from its Silver to Golden Jubilee needs to be even more accelerated and may involve steeper climb in its ladder of success. As a performing organisation, expectations from CEFIPRA are mounting. Let me wish the organisation all the vibrancy and positive energy flow to emerge as the most visible organisation engaged in the promotion of bilateral relationships between two countries in the Science, Technology and Innovation sectors. Both France and India expect CEFIPRA to innovate and scale new heights. ●

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INDIA

leader

CEFIPRA - 25 years of

Catalysing Indo-French S&T Partnerships



It was a cold evening in February, 1979 in Paris. An engineer from the Technical Liaison Mission of the Atomic Energy, also doubling up as the Science Counsellor at the Indian Embassy, sat across the table with an important functionary, in a hotel room, busy taking down in long hand, dictation of a set of guidelines for a joint initiative by the governments of India and France. The days prior had been hectic, to say the least, due to engagements and ceremonies associated with the visit of (late) Mrs. Indira Gandhi, the then Prime Minister of India, to France. Little did he realize that the guidelines that were being spelled out were meant for a special purpose bilateral Indo-French organization that he himself would head as its First Director in 1987.

The seeds for creation of Indo-French Centre for the Promotion of Advanced Research (CEFIPRA) had been sown during that visit of Mrs. Gandhi, during her meeting with Monsieur Giscard D'Estaing, then the President of France. The two visionary leaders felt and highlighted a strong desire to create a new institution, a joint Centre, that embodies the spirit of S&T Cooperation between the two great democracies of the modern world and bring together best minds from both nations to secure solutions to various issues and challenges in the life of their citizens.

Going forward, CEFIPRA came into existence in September, 1987, with Mr. P.G.S. Mony being appointed as the Director, with an office in the Department of



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Rakesh Sood
Indian Ambassador to France

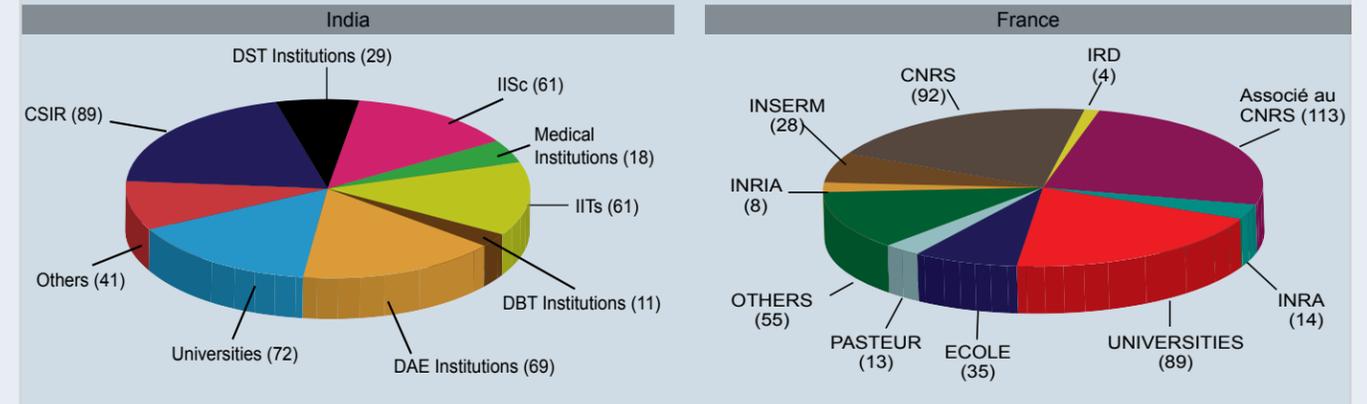
CEFIPRA has grown into a unique bilateral institution promoting quality S&T research not only in conventional areas but also other futuristic fields like robotics and aerospace.

CEFIPRA institution has not only brought scientists of the two countries together it has also strengthened important linkages between S&T institutions of France and India.

Science & Technology complex at New Delhi. By now, the Memorandum of Association, the Byelaws and the structure of the Centre had been put in place with the Director acting as the bridge between the Governing Body (members representing the two governments) of the Centre, and the Scientific Council, comprising eminent scientists nominated for fixed tenures by the respective Governments, to steer and shape the scientific programmes of the Centre. The decision of the two governments to have equal representation from both the sides in these two important organs was forward looking. The decision taken by the Governing Body in its first meeting itself

leader

PROJECTS SUPPORTED BY CEFIPRA Institutional Spread



was that both countries would support the centre in equal parts and that the Centre would function as an autonomous organization for utilizing the funds available as Grants-in-aid. This was probably the most important decision that put CEFIPRA on path of effective existence and successful growth. It is relevant to bear in mind that at the time of its creation CEFIPRA was a unique experiment in bilateral cooperation world over.

The scientific programmes of CEFIPRA were set on a firm footing by the logical and business-like approach adopted by its Scientific Council. Taking an overview of the ongoing S&T collaborations at that time between India and France, the Council interacted with all stakeholders and consolidated such programmes under the institutional ambit of CEFIPRA. The initial Council meetings were in fact dedicated to making a structured system for receiving proposals from scientists, formulating the evaluation criteria, devising outreach mechanisms etc. In the backdrop of all these efforts coming from a large group of eminent individuals from both countries, it was not long before publications started emanating from projects supported by CEFIPRA. This was a matter of pride and satisfaction indeed for all those who had toiled to create a well oiled mechanism for channelizing the S&T acumen towards meaningful results.

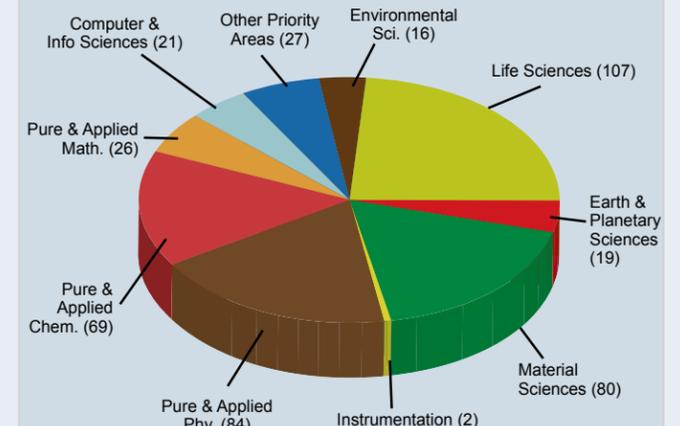
The initial years were very demanding on the Director of the Centre, as he had not only to ab-initio set-up an office frame-work for the secretariat, but also to look after all the interactions related to the two nodal ministries, budget, as well as the follow-up with the scientific communities of the two countries. These constraints were mitigated, though not resolved, by strengthening the Secretariat of the Center to support the Director in these formative years. This included inducting a professional staff as Manager (Admin & Accounts).



Francois Richer
French Ambassador to India

A new phase of strategic partnership for defence and energy has developed between India and France which is expected to trigger an enormous industrial and technological partnership between India and France. In this partnership innovation has major role to play. For deepening partnership between India and France we require skills, will, resources and IFCPAR/CEFIPRA

PROJECTS SUPPORTED BY CEFIPRA Thematic Distribution



Seminars and workshops, with carefully identified and invited participants, in incipient areas on focused themes, was chosen by the Scientific Council as one of the modes for eliciting good collaborative research proposals. These were the mainstay in the initial years to enable interactions between the active groups of the two countries and continue to serve as a sterling exploratory and networking mechanism even today. Each successive Council moulded and shaped the programmes of the Centre by modifying existing guidelines and introducing new ones, by carefully taking into consideration the needs of the times. The criteria of quality, continuity, critical mass, and complementarity adopted by the Council has helped in the evolution of a balanced and uniform evaluation of proposals received by the Centre.

Another important decision by the Council that has had a salubrious effect on efficacy of CEFIPRA has been to ensure each project supported through its funds provides for doctoral and postdoctoral positions in the relevant fields. As a result one can see the phenomenon of “passing of the baton” between old and young scientists in atleast some areas like Mathematics and Astronomy to name a couple. The importance attached to human resource development through the programmes of the Centre has been steadfast and significant. Much of the credit goes to the approach of the Council in encouraging scientists to involve groups from both the sides, put in place enabling mechanisms for exchange of students, and organize schools and workshops for them to interact with each other from time to time.

The mandate path chartered for the Centre was widened, after nearly fifteen years of its inception, by adding on the Programme of Academia-Industry linkages in the project mode. Since this called for a different kind of expertise the Governing Body constituted a separate Committee to look into this programme. The foresight of the founding fathers is borne to the fore here as the Centre had already in place guidelines for Intellectual Property Rights, formulated by eminent experts from India and France. The flexibility incorporated into these guidelines allowed them to be applied even today. Now 12 years old, the programme already has several success stories to narrate with a major product having

INDUSTRIAL RESEARCH PROGRAMME

Industrial Research programme has been initiated by IFCPAR to finance collaborative projects involving research institutions and industrial partners. The objective is to promote the development of new processes or products or the improvement of exiting processes or products, thus offering the industrial partners enhanced competitiveness at the international level.

BASIC REQUIREMENTS FOR SUBMISSION OF PROJECTS

Projects submitted in the framework of this programme must involve at least one industrial partner either in France or in India and a research institute from the other country. Projects involving more than one industrial partner or research institute are also welcome.

WHO CAN APPLY

Any industry/scientist in a research institution in India and France can apply.

MODALITIES

CEFIPRA will finance research and development work carried out in the research institute involved in the projects. The industrial partner must fund at least the part of the work carried out by itself. The partners must draw up a “Technology Management Plan”, taking in to consideration CEFIPRA’s guidelines for Intellectual Property rights and those of the participating institutions, based on the value addition expected from the innovations developed through the project.

HOW TO APPLY

- Formulate the problem you wish to address
- Identify partners in India and France
- Send a 2-3 page concept proposal describing objectives, methodology, expected outcome, role of partners and financial implications to the IFCPAR
- The Industrial Research Committee, comprising experts from India and France, will examine the proposal and advice the partners on preparing a detailed proposal.

FUNDING

CEFIPRA provides complementary support to the research institutes for engaging doctoral and post doctoral researches, the purchase of consumables and small equipment necessary for achieving the objectives of the project. Exchange visits are also funded by CEFIPRA.

GOVERNING BODY

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Scientific Research Projects

Objectives

- To Promote Scientific Cooperation in Advanced Areas between India and France
- To Complement the Expertise and Strength
- To Support High Quality Research Groups
- Promote Excellence in Science and Technology

We Look For

- Quality
- Continuity
- Critical Mass
- Complementarity

Domains of Cooperation

- Pure And Applied Mathematics
- Computer Science
- Life And Health Sciences
- Pure And Applied Physics
- Pure And Applied Chemistry
- Instrumentation
- Earth and Planetary Science
- Materials Science
- Environmental Science

Priority Areas

- Water
- Biotechnology
- Information Technology

WE SUPPORT

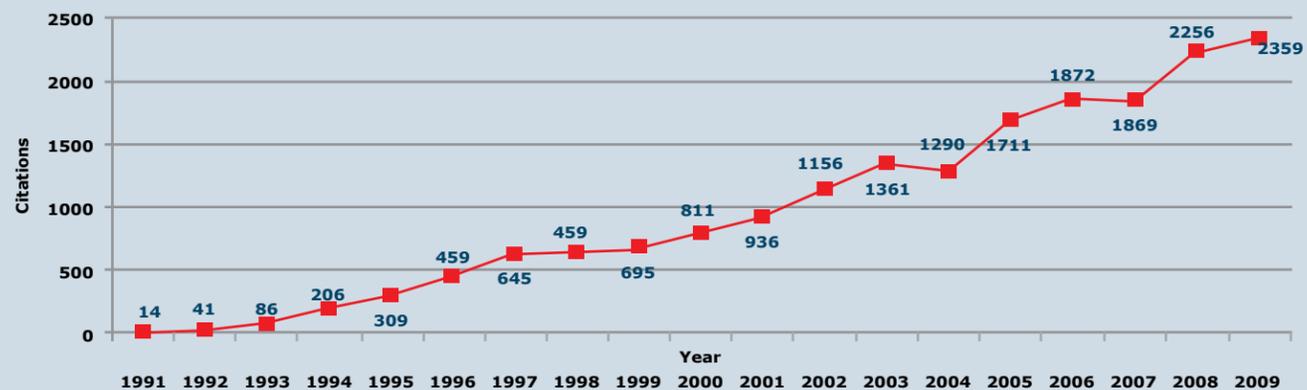
Indian Side:

- Manpower: 1 JRF/SRF/RA for 3 years
- Recurring Expenses
- Equipment: Essential Equipments only
- Travel from India to France

French Side:

- Manpower: One postdoc - 2 years or 1 PhD student - 3 years
- Recurring Expenses
- Travel from France to India

Citations received by research papers from CEFIPRA projects



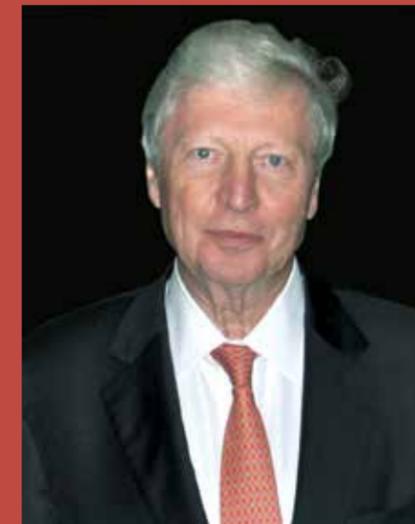
been developed with CEFIPRA and released in the market. Innovation is one of the key indicators of the success of this programme.

The mandate of CEFIPRA was further enhanced in year 2012 with the introduction of targeted programmes aimed at enabling other agencies from France and India to utilize the platform of CEFIPRA to foster collaborations in specific theme areas and domains.

The evolution of CEFIPRA, from its humble beginning as

an institution devoted to catalyzing research and knowledge exchange, to an organisation contributing to every aspect of the knowledge chain was made possible by the active support and farsighted vision of the two governments, the scientific communities of the two countries and all those who have been associated with CEFIPRA over the years that have gone by. The human-face of CEFIPRA is reflected in all aspects of its activities, be it offering solutions for the stakeholders, enabling people-to-people interactions or adapting to changes as they occur. ●

Engaging with the Laureate



Jules A. Hoffmann (born 2 August 1941) is a research director and member of the board of administrators of the National Center of Scientific Research (CNRS) in Strasbourg, France. He received 2011 Nobel Prize in Physiology or Medicine (together with Bruce Beutler) for "their discoveries concerning the activation of innate immunity."

Dr. Hoffmann received undergraduate degrees in biology and chemistry at the University of Strasbourg, France from where he also completed his Ph.D. in biology, in 1969. His post-doctoral training was at the Institut für Physiologische Chemie at Philipps-Universität in Marburg am Lahn, Germany (1973-74).

Hoffmann is a member of the German Academy of Sciences Leopoldina, the French Academy of Sciences, the Academia Europaea, the European Molecular Biology Organization (EMBO), the United States National Academy of Sciences, the American Academy of Arts and Sciences and the Russian Academy of Sciences.

Prof. Jules Hoffmann, Nobel Laureate (Physiology/Medicine 2011) visited India from 6-14 October 2012 at CEFIPRA's invitation to deliver lectures in five cities to commemorate the 25 years of CEFIPRA. Dr. Hoffman's visit took off with a welcome meeting at New Delhi which was attended by Prof. N.K. Ganguly, Advisor, Translational Health Science & Technology, National Institute of Immunology, New Delhi; Prof. Sudhir Kumar Sopory, Vice Chancellor, Jawaharlal Nehru University, New Delhi; Prof. Sanjay Puri, School of Physical Sciences, Jawaharlal Nehru University, New Delhi; Dr. V.S. Chauhan, Director, ICGEB; Dr. Chandrima Shah, National Institute of Immunology; Dr. A. Mitra, Head, International Cooperation-Bilateral, Department of Science & Technology, New Delhi and Dr. Harigopal, Head SERC, Department of Science and Technology, New Delhi.

Apart from Delhi, Dr. Hoffman visited Pune, Hyderabad, Chennai and Bangalore to interact with faculty, researchers and young students at various institutions. The institutions visited by Dr. Hoffman included Delhi University and Jawaharlal Nehru University at New Delhi; National Centre for Cell Sciences and Indian Institute of Science Education & Research at Pune; Centre for Cellular and Molecular Biology and Indian Institute of Chemical Technology at Hyderabad; Anna University at Chennai and Jawaharlal Nehru Centre for Advanced Scientific Research, Indian Institute of Science and Bangalore University at Bangalore.

At all the institutions, Prof. Hoffmann delivered a lecture on "The Antimicrobial Defense of Drosophila: A paradigm for Innate Immunity from Flies to Humans" and engaged with the audience through lively Q&A sessions focusing his area of research related to innate immunology in human beings, cancer, fungal infections and infectious diseases.

In addition to visiting institutions across the country, Dr. Hoffman met several senior officials of Indian S&T establishment, including a breakfast meeting with Dr. T. Ramasami, Secretary, DST, Govt. of India. ●



Engaging with the Laureate : **Glimpses**



Seminar on **Successful Indo French S & T Cooperation** Chennai, India
23 June 2012



Dr. T. Ramasami, Secretary, DST and Co-Chair, IFCPAR was the chief guest and delivered the inaugural address. **Prof. V.Kumaran**, **Prof. Sanjay Puri**, **Prof. V.Krishnan** and **Dr. G. Sundararajan** (members of Scientific Council and Industrial Research Committee) participated during the seminar in addition to large number of other invited delegates.

- The presentations made during the seminar focused upon:
- History of the collaborations
 - Short summary of the achievements on the projects
 - Complimentarity between Indian and French scientists
 - Role of CEFIPRA in project implementation
 - Output from the project and its impact
 - How your project can be considered as an example for successful Indo French S&T cooperation
 - Spin-offs, if any.

The collaborators presented their work done in the project and also gave their views on current and future role of CEFIPRA in promoting collaborative S&T research between India and France. ●

The Seminar on “Successful Indo French S & T Cooperation: CEFIPRA” was held at Chennai on June 23, 2012 to commemorate 25 years of CEFIPRA’s existence. The Collaborators from India and France of ten selected projects had been invited to present their experience and success stories of the collaboration through CEFIPRA.

Indo-French Symposium on **Automorphic Forms, Galois Representations and L- functions**

Pune, India
3-7 September 2012

To commemorate 25 years of existence of CEFIPRA an Indo-French Symposium on Automorphic Forms, Galois Representations and L- functions was organised at the Indian Institute of Science Education and Research (IISER), Pune from 3-7 September 2012. The symposium was conducted by Prof. **A. Raghuram** (IISER, Pune) and **J. Tilouine** (Univ. Paris 13). **Dr. B. Balasubramanyam** served as the local organizer.

The symposium focused on current developments of modern Number Theory in connection with Automorphic Forms, in its various aspects: analytic, harmonic analytic, representation-theoretic, algebro-geometric, Galois-theoretic, cohomological, Hodge-theoretic, p-adic Hodge theoretic, etc.

The French delegation at the symposium comprised of **O. Brinon** (Bordeaux Univ.), **L. Clozel**, **J.-M. Fontaine** (Univ. Paris 11, Orsay), **B. Stroh** (CNRS, Paris 13), **O. Taibi** (Ec. Norm. Sup.), **J. Tilouine** and **J. Wildeshaus** (Univ. Paris 13).

The Indian delegation consisted of **U.K. Anandavardhanan** (IIT, Mumbai), **B. Balasubramanyam** and **C. Bhagawat** (IISER, Pune), **C.S. Dalawat** and **R. Thangadurai** (HRI,

Allahabad), **S. Gun** (IMSc., Chennai), **M. Manickam** (KSOM, Kozhikode), **C.S. Rajan**, **S. Shekhar A. Nair** and **E. Ghate**, (TIFR, Mumbai), **R. Raghunathan** (IIT, Mumbai), **R. Sreekantan** (ISI, Bangalore), **A. Raghuram** and **S. Spallone** (IISER, Pune), **R. Tandon** (Univ. Hyderabad).

The themes that were covered during many presentations at the symposium were:

- Classical aspects of modular forms.
- Harmonic analysis and spectral analysis on locally riemannian manifolds.
- Automorphic L-functions and their special values
- Cohomology of arithmetic groups.
- Galois representations associated with modular forms (or more generally, automorphic forms)
- Representation theory
- Algebraic cycles and Hodge conjectures for abelian surfaces
- Non-abelian Iwasawa theory of Selmer groups
- Motives on Shimura varieties
- p-adic variation of Siegel modular

The symposium was also an occasion for scientists from both sides to discuss possibilities of academic collaborations and exchanges, at faculty and student levels, in the years ahead. ●

Indo-French Seminar on **Energies for the Future**

Paris, France
29 Nov.-Dec. 1 2012

A seminar on ‘Energies for the Future’ was organised at Paris, France from 29 November-December 1, 2012. The seminar focused on emerging paradigms that will be prominent components of energy solutions of the future.

The specific topics covered during the seminar included :

- Amorphous and crystalline silicon based photovoltaics
- Organic photovoltaics.
- Materials for energy storage
- Hydrogen as a source of energy
- Bio hydrogen and molecularly engineered materials for its production.

Apart from scientific discussions the seminar also explored the possibilities of future collaboration between Indian and French scientists in field energy. At conclusion, it was noted that there is a great scope for increased cooperation between France and India in the following sectors :

- Photovoltaics- silicon + organic
- Energy storage devices and engineering materials for the same
- Biohydrogen

The participants from France included **Dr Marc Rapin** (French National Aerospace Research Center.), **Prof. Patrice Simon** (Centre Interuniversitaire de Rechercheetd’Ingénierie des MATériaux), **Prof. François**

Béguin (Centre de Recherchesur la MatièreDivisée), **Dr Gilles Flamant** (Procédés Matériauxet Energie), **Dr Rita Baddour-Hadjean** (Institut de Chimieet des Matériaux Paris Est), **Dr Michel Latroche** (Institut de Chimieet des Matériaux), **Dr Nicole Mermilliod** (Commissariat à l’EnergieAtomique-Nouvelles technologies de l’énergie), **Dr Alain Dollet** (Institut des Sciences de l’Ingénierieet des Systèmes), **Prof. Pierre Millet** (Institut de Chimie Moléculaireet des Matériaux), **Prof. Jérémy** (GEPEA, Génie des procédés, environnement), **Prof Philippe Poizot** Institut des Matériaux Jean Rouxel.

India was represented by **Prof. C N R Rao** (Jawaharlal Nehru Centre for Advanced Scientific Research), **Prof. D D Sarma** (Indian Institute of Science), **Prof. A K Barua** (Bengal Engineering and Science University), **Dr. Pushpito Ghosh** (Central salt and Marine Chemicals Research), **Prof. Pradip Dutta** (Indian Institute of Science), **Dr. Suresh Chand** (National Physical Laboratory), **Dr. Satish Patil** (Solid State & Structural Chemistry Unit, Indian Institute of Science), **Dr. Sadhna Rayalu** (National Environmental Engineering Research Institute), **Dr. Vijayamohan K. Pillai** (Central Electrochemical Research Institute) and **Dr. S N Pal** (National Chemical Laboratory). ●

Forthcoming Events

- Seminar on **Embedded Systems for Aeronautical and Allied Sectors** | 5th February 2013 | SAEINDIA Bangalore, India | Contact Person : **Ritheesh Shetty** | E-mail : riteesh.shetty@assystem-india.com
- Seminar on **Smart System Integration based on MNT (Micro and Nano Technology) for Harsh Environments** | February 5-7, 2013 | IIT Bombay, Mumbai, India | Contact Person : **Prof. Ramagopal Rao** | E-mail : rrao@ee.iitb.ac.in
- **Governing Body** meeting of CEFIPRA | February, 7, 2013 | Paris, France | Contact Person : Director, CEFIPRA | E-mail : cefipra@gmail.com
- Seminar on **Recent Trends in Proteomics** | April 6-8, 2013 | Indian Institute of Science, Bangalore, India | Contact Person : Prof. K Somasundaram | E-mail : kumaravelsomasundaram@yahoo.com
- Indo-French School on **Materials for Future** | April 15-19, 2013 | University of Poitiers, Poitiers, France | Contact Person: Celine Gerard | E-mail : celine.gerard@cnrs.pprime.fr



Indo-French Centre for the Promotion of Advanced Research (IFCPAR) is a model for international collaborative research in advanced areas of science and technology. The centre was established in 1987 with support from Department of Science & Technology, Government of India and the Ministry of Foreign Affairs, Government of France.

IFCPAR



CEFIPRA

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