ENSEMBLE

The Expanded Mandate

CEFIPRA
CEFIPRA, India’s first and France’s only bilateral organization for S&T cooperation, has evolved over the years in response to the need of its external environment and stakeholders in both the nations. Established in 1987, the first 15 years of CEFIPRA’s existence were focused on bringing scientists from both the countries closer by supporting projects in basic and applied science. In response to the opening up of global economy, support has been extended for academia-industry collaborations to harness the complementarity between knowledge and entrepreneurial spirit across the two nations.

CEFIPRA, the longest operating bilateral S&T organization, has resulted in a well networked community of Indo-French scientists and organizations. With the growth of the S&T ecosystem in both the nations and increasing emphasis of respective Governments on innovation for social goods, CEFIPRA’s role has also evolved as an enabler and connector of the Indo-French S&T systems across the knowledge innovation chain. In this role, while the platform of CEFIPRA has been extended to co-opt national funding agencies for “Targeted Programmes”, the private sector entities have also been encouraged to utilize this platform to strengthen the knowledge-wealth transformation pathways. Through dedicated mobility support programmes, young doctoral students have been encouraged to get exposure to the S&T systems of the other nation in order to ensure the sustainability of the bilateral S&T ecosystem. In this edition of ENSEMBLE, we highlight our Targeted and PPP programmes that have been recently added to the programme profile of CEFIPRA.

As we summarize the activities and achievements during the year of CEFIPRA as a growing and dynamic organization, we also look forward in the new year to meet the growing expectations of our existing stakeholders while also embracing the needs of many new ones!

Happy New Year 2015!
Bonne Année 2015!
India and France have a long history of collaboration in the field of Science and Technology transcending boundaries over seven decades. Despite various existing collaborations, there was a pressing need to institutionalise these exchanges through mediated actions that act as a bridge between France and India to come together and exploit complementary strengths and develop mechanisms for targeted actions, in pursuit of goals that advance scientific understanding, globally, as well as bilaterally. CEFIPRA was set up in year 1987 as India’s first, and France’s only, organization to facilitate S&T collaboration between the two nations. CEFIPRA was created by equal funding commitment from both the Governments to promote the spirit of S&T cooperation and bring together best scientific minds from both nations to create global common goods.

The journey of CEFIPRA started with funding of basic and applied scientific research between India and France. Through the Collaborative Scientific Research Programme, scientists from both the nations have been brought together in project mode to work towards common goals, essentially to complement the core strengths of the individual scientists or research groups in cutting-edge S&T areas.

Advent of global economic liberalisation in the 90s paved the way for utilizing complementary strengths of both countries to catalyse knowledge generation, innovation and create pathways for economic and/or societal benefits. Seizing this opportunity, CEFIPRA expanded its role by beginning to support academia-industry partnerships through its Industrial Research Programme which provided a platform for French and Indian industries to collaborate with research institutions for increasing their competitiveness.

Over the years, contribution of national funding agencies has improved significantly in the S&T landscape of India and France. Subsequently the role of CEFIPRA has also evolved as a connector, and an enabler, in the national S&T systems. In this role, through targeted programmes, CEFIPRA provides a platform for S&T agencies of both the nations to collaborate in specific targeted areas for supporting the creation of global common goods.

In recognition of the keenness of private sector organisations to contribute to the Indo-French scientific collaboration using CEFIPRA’s the experience CEFIPRA now also facilitates the basic and applied scientific research needs of the Indian and French industries in Public Private Partnership (PPP) mode.

Mobility support is an important instrument for nurturing the Indo-French S&T ecosystem. With this understanding, programs for offering dedicated support to the Indian and French students that expose them to the ST&I environment of the partnering country have been launched by CEFIPRA.

Rapid evolution of CEFIPRA in response to the growing needs of its stakeholders across the knowledge innovation chain would not have been possible without the valuable guidance of CEFIPRA’s Governing Body, active support of the Government and robust participation of the scientific communities from both the countries.
For the past 27 years CEFIPRA has been associated with bridging the knowledge between two nations in the broader areas of science & technology through the support of scientific collaborative research projects.

In the recent past, support from national funding agencies from both the nations has increased. Recognizing this development, CEFIPRA initiated its targeted programmes by bringing national funding agencies of the two nations to support projects in specific thematic areas of science & technology.

During Year 2012, DST-ANR targeted programme was initiated for fostering collaboration between scientific communities of two countries in specific thematic areas of Science and Technology over the period of 3 years. Mobility of the scientific personnel, human resources & recurring expenses are supported through this programme.

Under this programme, ANR provides support to the French collaborator and DST supports the Indian collaborator. On behalf of DST, CEFIPRA manages the implementation of the programme on Indian side and coordinates between the French and Indian Organizations.

Target areas identified for 1st year of the programme, were Infectious Diseases & Engineering Sciences. Following four projects were supported under the programme.

New Functions for H-NS Family of Proteins in Gram-negative Bacteria Pathogens

This project aims at unravelling the molecular mechanisms underlying essential aspects of regulation in bacteria by proteins of the nucleoid-associated H-NS family in the context of enterobacterial virulence. It is expected that these studies will help illuminate the mechanisms by which the H-NS protein family act as pleiotropic regulators of adaptation of bacteria to different environmental conditions and of bacterial pathogenesis in humans and other mammalian hosts.

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L’Agence nationale de la recherche
The French National Research Agency

L’Agence nationale de la recherché (ANR) was created in February 2005 as a public interest grouping. With effect from 1 January 2007 ANR was designated as a Public Administrative Establishment. ANR provides funding for project-based research in all fields of science – for both basic and applied research – to public research organisations, universities and private companies. Since 2010, ANR has also been the principal operator of the Investments for the Future programme in the field of higher education and research. In this role it ensures the selection, funding and monitoring of projects relating to the centres of excellence, health, biotechnologies, and the transfer of technology and the creation of value from research.

Complex Oxide Nanocrystal Line Systems for Chemical Sensors

The project focuses on complex oxide systems and their response towards sensing low reactive gases like CO₂. The aim is to explore the sensing mechanisms to better understand the reasons for the reactivity of certain metal oxide systems to specific gases and improve the performance of chemical sensors in terms of sensitivity, selectivity and stability, as well as by reducing the response time, recovery time and operating temperature.

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Metallurgical Engineering and Materials Science
Indian Institute of Technology, Mumbai, India

Antoine Barnabe
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Université Paul Sabatier
Toulouse, France

Dense Particulate Systems

This project focuses on the rheology of particle-fluid suspensions and dry granular materials, in the regime where the particle and fluid inertia play no role. Principal objective is to (a) bridge the descriptions between the fluid-dominated Stokesian suspension and the contact dominated granular medium and (b) to quantify the extent to which the fluid and contact play roles in the rheology of suspensions and saturated granular materials. The project addresses the problem by using unconventional experimental tools developed by using particles of controlled roughness and stiffness, and by computations.

Prabhu R. Nott
Department of Chemical Engineering
Indian Institute of Science, Bangalore

Elisabeth Guazzelli
Aix-Marseille Univ., CNRS
Marseille, France

Soluble Mediators of the Immune System Against Aspergillus fumigatus

The rate of mortality due to Invasive Aspergillosis (IA) caused by Aspergillus fumigatus (in the immuno-compromised individuals has increased significantly during the last two decades. A. fumigatus propagates by forming airborne conidia that can enter the immuno competent human lung-alveoli wherein they are eliminated by the innate immune system comprising of both cellular barriers and soluble mediators. Mechanism by which phagocytes destroy these conidia is partly documented, but the role played by the soluble mediators is not known. The proposal aims to decipher the role played by soluble mediators of the innate immune system in eliminating the A. fumigatus conidia.

Arvind Sahu
National Centre for Cell Science,
Pune, India

Vishukumar Aimanianda
Unité des Aspergillus, Institut Pasteur
Paris, France
This proposal aims to enhance the understanding about structural nuances that influence the H-bonding mediated co-assembly of bis-amide functionalized dialkoxy-naphthalene (DAN) donors and naphthalene-diimide (NDI) acceptors using state-of-the art facilities including isothermal titration calorimetry (ITC), Cryo-TEM, small angle X-ray scattering (SAXS) and neutron scattering experiments (SANS) in addition to the NMR, UV/vis and fluorescence spectroscopy.

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Associate Professor, Polymer Science Unit
Indian Association for the Cultivation of Science
Kolkata, India

Philippe Mésini
Directeur de recherché
Institut Charles Sadron
Strasbourg, France

Association of microRNA and mitochondria and Their Role in Regulation of Neuronal Cell Death in Fragile X Tremor Ataxia Syndrome (FXTAS)

FXTAS is an inherited neuro-degenerative disease caused by expanded CGG repeats in the FMR1 gene. Patients are characterized by progressive intention tremor, gait ataxia and cognitive decline. Importantly, FXTAS shares some common features with other neuro-degenerative diseases. Little is known of the initial mechanisms triggering neuron degeneration in FXTAS. Taking advantage of the recent discovery of microRNA mis-regulation in FXTAS, as well the recent identification of microRNA specifically associated with mitochondria, the project seeks to test whether microRNA associated with mitochondria would be altered in FXTAS, leading to early mitochondrial dysfunction and neuronal cell death.

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Institute of Genetics and Molecular and Cellular Biology
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The targeted areas for third year are in neuro sciences and engineering sciences(including materials science, chemistry, smart transport, energy)
Mankind has moved quite a few steps in evolution as a dominant form of life on planet earth. These steps can be, most simply listed as the agricultural revolution, the industrial revolution and, now, the information revolution. DST-INRIA-CNRS initiatives seeks to capture the benefits of ICT for common goals.

Information and Communication Science and Technology (ICST) is at the heart of the “third industrial revolution” and is significantly modifying the creation, production and distribution processes that trigger the economic and technological progress in all sectors of activity. Recognizing the role ICST is going to take societal and economical development to the next level, an Indo-French workshop was organized on the subject by CEFIPRA in India on April 4-5, 2013. The workshop brought together French & Indian scientists for identifying topics of mutual interest for both the countries in the field of ICST. In the outcome, Big Data, Cyber-Physical Systems and High Performance Computing were identified as common areas of interest.

This in turn led to the launch of DST-INRIA-CNRS targeted programme in the area of ICST to foster collaboration between the scientific communities of the two nations. Mobility of the scientific personnel & human resources were also supported through this targeted programme.

Under the program CNRS & INRIA support the French component of the programme and DST supports the Indian part through CEFIPRA. On behalf of DST, CEFIPRA manages the implementation of the programme on Indian side and coordinates between the French and Indian Organizations. During the 1st year of the programme 2014, the targeted areas were Big Data, Cyber-Physical Systems and High Performance Computing.

**Big Data**

Big data is a term used to describe the exponential growth and availability of data in terms of volume, velocity and variety from day to day IT transactions from all fields where IT systems interface with each other or with the external world they serve. With decreasing storage costs, other issues have emerged, including how to determine relevance within large data volumes and how to use analytics to create value from relevant data.

**Cyber Physical Systems**

Cyber-Physical Systems (CPS) are integrations of computation, networking, and physical processes. Embedded computers & networks monitor and control the physical processes, with feedback loops where physical processes affect computations and vice versa. The economic and societal potential of such systems is vastly greater than what has been realized, and major investments are being made worldwide to develop the technology.

**High Performance Computing**

The term high performance computing (HPC) refers to any computational activity requiring more than a single computer to execute a task. Computational Science has now established itself as the “third pillar” of scientific enquiry alongside theory and experiment. HPC has the capacity to handle and analyse massive amounts of data at high speed. It can be used to model and solve highly complex problems across a range of high value sectors.

In response to the first call for proposals six projects were supported. We are pleased to showcase the same here.
### Basal Ganglia at Large

The project seeks to select a few classical models of BG and Hippocampus (and of their interconnections), generally described for simple tasks involving tens or hundreds of neural units and expand them to thousands or millions units. Since most of these structures have a sensory and/or motor topographical representation, this can be done by defining tasks where the input (sensory) and output (motor) information flow is larger.

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Hyderabad, India

Frédéric Alexandre  
Laboratoire Bordelais de Recherche en Informatique, Institute for Neuro-degenerative Diseases  
Bordeaux, France

### Optimal Inference in Complex and Turbulent data

With high resolution sensors in the spatial, temporal and spectral domains and dynamic range of acquisitions, large high quality datasets pile up in specialized database centers without being exploited. Use of satellite data for precision monitoring of Earth in real time is an issue, given the challenging problems of data interpretation. The project seeks to develop new methods for management of satellite data for effective Earth monitoring, using nonlinear inferences across the scales of complex signals.

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Indian Institute of Technology  
Roorkee, India

Hussein Yahia  
Head Team GEOSTAT  
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Talence, France

### Algorithmic Verification of Real-Time Systems

Timing constraints are often crucial for cyber-physical systems designed to interact with the physical world. Correctness of cyber-physical systems that work under time-constraints is a challenge since traditional methods based on testing are no longer applicable in a safety-critical setting. The goal of the project is to enable control designers to exploit advances in formal verification of time critical cyber-physical systems by enlarging the applicability of formal verification for certifying correctness of timed systems and to develop a tool chain for the verification of timed systems.

Krishna S.  
Indian Institute of Technology  
Mumbai, India

Frédéric Herbreteau  
Institut Polytechnique de Bordeaux  
Bordeaux, France

### Post-stroke Tele-neurorehabilitation

Stroke is a global health problem and a prominent cause of mortality and disability across the world. There is a pressing need to leverage cyber physical systems where the ability to customize, monitor, and support neuro-rehabilitation at remote sites is possible with the integration of computation, networking and physical processes via telecommunication. The objectives of the project are to: (a) develop a cyber physical system for tele-neuro-rehabilitation by integrating biosignal sensors, eye tracker and motion capture to deliver neuromuscular electrical stimulation; (b) develop gaze interaction with biofeedback as human-machine interface for cyber physical system, and (c) validate the system for individualized post-stroke tele-neuro-rehabilitation.

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Anirban Dutta  
Associate Researcher, Team DEMAR  
Montpellier, France
## Evolving Communities and Information Spreading

Proper detection of dynamic communities facilitates prediction of network functionalities. Several important dynamics can be studied to form the basis of any recommender system, important for understanding epidemic, rumor spread etc. Detecting a dynamic community is both scientifically challenging and timely. The goal of the project is to understand the dynamics of complex networks through the lens of communities and information spreading and the potential relations between these two problems.

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<tr>
<th>Bivas Mitra</th>
<th>Jean-Loup Guillaume</th>
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<td>Université Pierre et Marie Curie</td>
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## Personalized Mobility Services for Urban Travellers

With over 70% of the world’s population expected to be in cities by 2050, urban mobility is a key priority for municipalities worldwide. While public multi-modal transit systems are indeed the key to solving the mobility challenges, they need to be augmented by way of improved interface with the populations they serve. The project aims to produce an open source middleware platform called Sarathi, enriched with personalized mobility services for urban travelers and evaluated via real-life demonstrators.

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<tr>
<th>Pushpendra Singh</th>
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<td>Research Scientist, project-team ARLES, Inria-Rocquencourt</td>
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The target areas for 2015 were Big Data, Computer Science for Biology and Life Science and Reliable and Scalable Computation. Following two project proposals have been selected for support.

## Automated Verification of Concurrent Software

There is a need to investigate foundational as well as practical issues related to the automated verification of modern concurrent and distributed software. This concerns methods for efficient bug detection useful to programmers at early stages of software development, and the methods that allow us to establish the correctness of a system. The goal of this project is to design new, advanced algorithmic methods guided by the recent developments in multi-core architectures and cloud-computing.

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<th>Madhavan Mukund</th>
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## A Big Data Perspective for Energy Management in Smart Grids and Dwellings

The smart grid paradigm which has emerged from the above considerations is the coupling of a communication network to the electricity grid. It strongly relies on the notion of Advanced Metering Infrastructure (AMI) that allows two-way communication between the consumer and the electricity provider (or even between consumers). The project aims at strengthening collaborations between France and India around the convergence between the fields of computer science and energy.

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<th>Ujjwal Maulik</th>
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In just a few years, biotechnology has established itself as a sector offering huge promise in terms of fulfilling unmet human needs through focused R&D. It has also emerged as a driver of international economy by triggering the creation of large number of successful business enterprises. A typical biotech enterprise tends to be capital-intensive, requires cutting edge facilities, employs high-end technical staff and generates significant revenues.

In order to optimise set up costs, synergy and scale the idea of setting up clusters of biotechnology companies represents an attractive option. It is now well recognised that development of biotechnology takes place at the crossroads of academic and industrial domains. This is best achieved within focused competitiveness clusters that bring universities, public research centres and biotech companies together into “bioclusters”.

India is amongst the top 12 biotech destinations in the world and ranks third in the Asia-Pacific region. India has the second highest number of USFDA approved plants,
after the USA. Already the largest producer of recombinant Hepatitis B vaccine, India has the potential to become a major producer of transgenic rice and several genetically modified (GM) or engineered vegetables.

France is a leader in Biotechnology in its own right. Since the year 2000, biotech-sector businesses in France have managed to raise an aggregate total of €2.92 billion. In terms of the number of new molecules being developed, France ranks 4th worldwide. French companies are now turning their attention to international markets and the opportunities they offer. France has succeeded in developing genuine expertise and internationally recognised know-how in the biotech field, even though this is still a young industry.

Besides being been strong players in the global biotech arena, India and France have complimentary strengths. Both the countries have been working to build up enabling institutional ecosystems that help biotech based organisations to achieve their full potential.

In France, Biotech firms receive support from project-based funding programmes (National Research Agency/ European programmes). These clusters need to be strengthened to pool and improve the measures devoted to the promotion of public research, to simplify the creation of public-private partnerships and to support the dynamics of innovation.

The Ministry of Higher Education and Research, Govt. of France launched the National Research and Innovation Strategy (SNRI) in 2009. The strategy identifies Biotechnology as one among the three key sectors identified for policy support.

In India, the Department of Biotechnology (DBT), Government of India has also taken up several programs and initiatives to promote the development of the Indian biotech sector. DBT’s efforts have been multifaceted ranging from providing extra-mural support to researchers, improving the regulatory framework governing the biotech sector in India as well setting up new institutions and mechanisms to support biotech enterprises in various stages of their evolution.

Looking at the institutional mechanisms available in both countries to support biotech sector development and the significant synergies that exist in between, Biotechnology Industry Research Assistance Council (BIRAC) and CEFIPRA signed an MoU for improving competitiveness of BIRAC supported Indian industries through French collaboration. Under this MoU, CEFIPRA will also act as a facilitator to bring homologue organizations in France for possible collaboration with BIRAC. BIRAC will support Indian industries and homologous organization will support French industries.

Comments by Managing Director, BIRAC

For achieving its objective of fostering the Indian biotechnology industry and making it globally competitive, BIRAC leverages its national and international collaborations with organizations such as BMGF, Wellcome Trust, USAID and CEFIPRA. Under the ambit of these partnerships, BIRAC has undertaken initiatives in healthcare diagnostics, translational medicine, sanitation, and agriculture and nutrition.

BIRAC forged a partnership with CEFIPRA and French Embassy in India to launch a call for proposals in Red Biotechnology area providing funding support up to pre-commercialization stage. This is being successfully implemented and managed by CEFIRA. Both the partnering organizations have invested 100,000 (Rs. 80 lakhs) each for 2 years for the call. The call focused on seeking innovative and affordable solutions for the common healthcare challenges that India and France face in the area of molecular diagnostics for prediction of cardiac diseases, Alzheimer’s disease and/or dementia, cerebral palsy and generation of new assistive technologies for mobility of the physically challenged. Two projects have been funded under this call.

In partnership with BIRAC and French Embassy in India, CEFIPRA has now enabled the industries from two countries to come on a common platform to collaborate and promote innovations in red biotechnology. CEFIPRA has acted as a nodal agency in bilateral cooperation in science and technology. BIRAC, as a partner with CEFIPRA, has experienced high level of professionalism and dedication from CEFIPRA for making the call a success and we will always look forward to work with CEFIPRA for exploring more avenues of mutual needs and interests.

We hope that this partnership will help not only research through collaborative projects but also Technology Development and Licensing.
Under this MoU, the Biotechnology Industry Research Assistance Council (BIRAC) and the Science and Technology Department of the French Embassy in India, Ministry of Foreign Affairs, Government of France launched an Indo-French Challenge oriented programme in the area of Red biotechnology based on a close partnerships between academia and industrial partners of both the nations up to pre-commercialization stage.

The first call for proposal in the programme was in the area of molecular diagnostics for prediction of disorder like cardiac, Alzheimers and or dementia, cerebral palsy and generation of new assistive technologies for mobility of physically challenged.

Following two proposals were selected for support:

### Oxidized HDL-Apoliprotein A1 as a Risk Predictor of CVD and Development of Novel Diagnostics

Atherosclerosis, a chronic inflammatory condition, is a major cause of cardiovascular disease (CVD). High Density Lipoprotein (HDL) helps reduce the risk of CVD by moving cholesterol from arteries/ peripheral tissues to the liver. Protective effects of HDL are mainly mediated by Apo lipoprotein A-I (ApoA1), the major protein component of HDL. Attempts to increase the HDL levels pharmacologically have been unsuccessful. Recent studies suggest that the Myeloperoxidase-mediated modification of ApoA1 impairs its function as a cholesterol acceptor, hampering HDL's cardioprotective nature. Modified HDL and/or Apolipoprotein-A1 in the human plasma is a potential early biomarker for the prediction of cardiovascular stroke. The project seeks to develop murine mAb specifically against Chlorinated-Tyr and Nitrated-Tyr residues (Try166 and Tyr192) as these residues are highly sensitive to oxidation modifications by Myeloperoxidase.

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### Peptide-based - Diagnostic Kit for Early Detection of Fatal Immune Response in Acute Myocardial Infarction Patients

Myocardial infarction (MI) is the most likely manifestation of Coronary Artery Disease (CAD), a significant cause of mortality and morbidity worldwide. Early diagnosis and timely intervention have improved outcomes and remains the cornerstone of the therapy for acute MI(AMI). The project seeks to investigate the expression of proteins and/or aberrantly modified proteins that could have antigenic properties in AMI and try to correlate the possible antibody response to them with disease activity with a goal to develop simple immunoassays to detect these antibodies and develop an AMIR-PepKit IVD.

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<td>Elian Lati</td>
<td>SAS GENEX, France</td>
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ENSEMBLE: What is the primary vision of l'université Pierre et Marie Curie (UPMC) and its priorities at this stage of its evolution?

Jean Chambaz (JC): UPMC is a comprehensive research university in France dedicated to science, engineering & medicine. We are also building Sorbonne Universités as a comprehensive research university with partnerships with various universities in disciplines of arts & humanities, management, law and technology. Our main priority in France is to focus on excellence in research and education. We are introducing the system of major and minor disciplines at the bachelors level. We at UPMC strongly believe in exposing our students to the diversity of global realities and also look forward to welcoming students from across the world to work in our labs. We are focused on developing an international strategic co-operation framework with selected premier academic institutions of other countries, and, exchange students and faculty in areas of common interest.

ENSEMBLE: What are the areas of synergy where India and France can complement each other’s strengths?

JC: It is a must that we tap the synergy between our strengths in research in all fields of science, and their applications for maximising societal good. The problems we face today are global in scope, and, very complex. Moreover, they have to be studied in their local context. So, we need to jointly work on complex subjects such as climate change, sustainability, global health, water availability and so on. We need to develop research in India, and in France, and teach our students in different socio-economic and geographical contexts.

ENSEMBLE: Which are most obvious opportunities for Indo – French collaboration in S&T in general?

JC: I am deeply convinced that we have to work together on topics like immunology, infectious diseases, malnutrition as well as chronic diseases such as cardio-metabolic or neuro-degenerative disorders. In France, we have developed translational research teams at Sorbonne University involving experts from engineering, life & social sciences. They try to find solutions to these diseases by working not only on their medical aspects but also on their biological, social and behavioural dimensions.

We have also set up the Institute of Engineering for Health which focuses on developing medical devices that are needed to assist people to age healthily at home. And this is a big issue for India as well, as its population ages. Moreover, this is also about the sustainability of our social support and public health systems.

ENSEMBLE: Indian students in French institutions are much less compared to those going to UK, USA, and Australia. What can be done to change this?

JC: For sure, number of Indian students coming to France is far less than what it should be compared to the potential. This is despite the fact that we have exceptional R&D capabilities and capacity in France. We...
have robust international programmes to host international
students in the best possible conditions for academic pursuits.
The fact that Paris is one of the most attractive cities in the
world showcasing European culture makes France even
more attractive for Indian students. We are developing new
mechanisms to attract students to France. CEFIPRA is of
course an excellent vehicle to develop cooperation between
Indian and French institutions to promote a higher intake of
Indian students in French academic institutions.

But going beyond just attracting Indian students to France,
I am most devoted to “exchanging” students where French
students also benefit from exposure to the Indian culture and a
great civilization that India is. India is an emerging economy
that already counts on the global stage and would count even
more in the future. Our students need to communicate with
Indian researchers and scientists so as to get well-acquainted
with the scientific discoveries taking place in India and
multiple challenges that India and France need to resolve in
their onward march.

**ENSEMBLE :** Cancer is a big challenge. What
are the opportunities for India – France
collaboration in development of diagnostic
detection and treatment modalities for cancer?

**JC :** We already have excellence in research on, and
treatment of, cancer in France. We have, at UPMC, created
the University Institute on Cancer which not only works on
cancer biology but also on treatment, and on ways to help
patient & their families to handle the fight against cancer.

We are focusing on new paradigms on personalised prognosis
of cancer involving physics, mathematics, computing and
other relevant disciplines. I see significant opportunities to
develop collaborative programmes with Indian institutes.

**ENSEMBLE :** You founded the Institute of
Doctoral Training at UPMC in 2005. What
inspired you and what were the hurdles in the
setting up of this unique institution?

**JC :** What was inspiring was that we have the best laboratories
in France along with very talented students. It was perhaps the
best way to prepare them for future career and at the same time,
giving them the opportunities to benefit from the experience of
original research.

When I founded the Institute of Doctoral Training in UPMC,
I was also chairing the Council for Doctoral Education of the
Association of European universities. We were deliberating hard
on the question of what exactly is a “doctorate”. We insisted
that the doctorate was a professional experience of practicing
original research and to develop the creativity and critical
thinking. At the same time we need to prepare the diffusion of
this research culture in the society. It is important to not only to
train researchers, but also to sensitise the society, economy and
politics. We need original thinkers in all sectors of the knowledge
based society. This is why doctoral training is so strategic for the
development of our countries.

**ENSEMBLE :** Do you have any agreements with
Indian academic institutions for an international PhD
program. Is there any opportunity according to you
that could be created for the same?

**JC :** I think that we should be extremely flexible. The most important
part in the doctoral programme is the research project. It would be
extremely beneficial for the candidates to develop their research
project in two institutions. In this context the best approach, in my
view, is the sandwich doctorate or what we call in France, cotutelle
PhD. Here a thesis is developed by two researchers, one in an Indian
institution and the other in a French institution going back & forth
between the two labs according to the needs of research project.

Contd. on pg. xxii
For an organisation with a mandate across an entire country, if not more, it is always a challenge to ensure that all stakeholders are aware of what the organisation strives to achieve and offers in terms of programs, schemes and mechanisms. Things get all the more complicated when an organisation operates across two countries, such as CEFIPRA because for a bilateral organisation, it is integral bringing together organisations with complimenting interests and priorities to collaborate across the two nations.

CEFIPRA’s Outreach programme is at the heart of the institution’s relationship with its stakeholders. In pursuit of this, CEFIPRA organised an Outreach Program in the city of Kolkata, India on 20th and 21st November, 2014.

The effort targeted the eastern and north-eastern region of India. The connection of France with India’s eastern region dates back to year 1673, when Chandan Nagar was established as a French colony. However the share of eastern regions participation in Indo-French scientific collaboration is almost negligible, as evident from the fact, that just 10% of projects supported by CEFIPRA are based in institutions located in eastern and north-eastern India.

This event was designed to highlight the achievements of the Indo-French S&T collaboration till date, the future possibilities and CEFIPRA’s role in making the two nations realise the full potential of the synergy that exists between them in terms of shared challenges and common goals.

To highlight the strength of Indo-French Science & Technology Ecosystem Scientific Council members

<table>
<thead>
<tr>
<th>Location</th>
<th>Name of the Speaker</th>
<th>Title of the Talk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presidency University</td>
<td>Prof Eric Joël Dufourc</td>
<td>Chemical Biology in Action: The Fluidity of Cell Membranes and Life Matters. A vision by Nuclear Magnetic Resonance</td>
</tr>
<tr>
<td></td>
<td>Institute of Chemistry and Biology of Membranes and Nano objects CNRS-Universite Bordeaux</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof Ayyappanpillai Ajayaghosh</td>
<td>The Art of Supramolecular Synthesis Towards Functional Materials</td>
</tr>
<tr>
<td></td>
<td>National Institute for Interdisciplinary Science and Technology (NIIST)-CSIR</td>
<td></td>
</tr>
<tr>
<td>Jadavpur University</td>
<td>Prof Marc Benedetti</td>
<td>Heavy Metal Speciation: Measurements and Models</td>
</tr>
<tr>
<td></td>
<td>Laboratoire Geochimie des Eaux Universite Paris Diderot, Paris</td>
<td></td>
</tr>
<tr>
<td>S.N. Bose National Centre for Basic Sciences</td>
<td>Prof Alain Fontaine</td>
<td>Outstanding Scientific Achievements in Nanosciences Developed at Grenoble</td>
</tr>
<tr>
<td></td>
<td>Institut Neel, Grenoble, France</td>
<td></td>
</tr>
<tr>
<td>Mathematics Department Calcutta University</td>
<td>Prof Bimal Roy</td>
<td>Combinatorial Batch Codes</td>
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<td></td>
<td>Indian Statistical Institute Kolkata</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof Gérard Huet INRIA Paris-Rocquencourt</td>
<td>From Lexical Trees to Effective Eilenberg Machines: A Tour of Mathematical Structures for Computational Linguistics</td>
</tr>
</tbody>
</table>
of CEFIPRA were roped in to deliver lectures on contemporary topics in different Science & technology institutes in Kolkata on 20th November, 2014.

More than 70 faculty members, researchers and students from relevant departments of various institutions participated in each lecture. The council members interacted with the participated students, faculty members & researchers. Possible collaborations, areas of interest & others related to the delivered topics were discussed. Young researchers actively participated in this interaction session. The lecture cum interactive sessions gave the opportunity to the participants to know about the French Science & Technology ecosystem. These sessions not only stimulate young minds to pursue a carrier in research but also provide the opportunity to the Scientific Council Members of CEFIPRA to know more about the aspiration and expectations of young mind in various scientific domains.

To showcase the past successes of Indo-French Science & Technology collaboration and to reach out to the scientists, researchers & faculties of Eastern & North Eastern region, one outreach session was organized at Indian Association for the Cultivation of Sciences (IACS), Kolkata on 21st November, 2014. More than 80 Faculty Members, Students, Researchers, Small & Medium Enterprises (SME), start-ups including student start-ups, SME clusters, French companies from different parts of the Eastern & North Eastern region participated in this outreach session. Presentations by the principal collaborators of CEFIPRA from eastern & north eastern region on project outcomes highlighted the role of CEFIPRA’s interventions across the knowledge innovation chain. Students who have availed Raman-Charpak and ESONN fellowships under the mobility support programme of CEFIPRA also shared their experiences emphasizing the unique benefits of these fellowships and its impact in their carrier. Two panel discussions were organized. The first panel discussion was on Indo-French perspectives on Science, Technology and Innovation collaboration through CEFIPRA. Scientific Council members of CEFIPRA gave the overview of the Indo-French Science, Technology and innovation ecosystem and possible areas of collaboration between two countries. Members also emphasized the need to promote the existing collaborations outside CEFIPRA. For instance, Indian Institute of Chemical Technology (CSIR-IICT) has been successfully collaborating with Rennes University for the past 15 years. Other panelists invited from this region also gave their views about the Science & Technology ecosystem in the Eastern & North eastern region and shared their expectations from CEFIPRA. The members of the audience actively participated in the panel discussion. They interacted with the scientific council members while sharing their expectations & views for furthering Indo-French Science & Technology collaboration under the umbrella of CEFIPRA. There was a strong desire from the members of the audience that plant sciences may be included as one of the priority area for Indo-French collaboration through CEFIPRA. The need to hold bilateral seminars especially for Eastern and North Eastern regions on the relevant thematic areas such as zoonotic diseases and drug targeting, use of nano particle for bioremediation of soil, Herbal medicine were also highlighted. The members of the audience discussed on the topic to find out the possible collaborators in France. Inspire Fellows from the region suggested for webinar at CEFIPRA’s website. Young researcher & students also
actively participated & gave their views on ESONN & Raman-Charpak fellowship programmes.

The second panel discussion was focused on **Indo-French industrial collaboration**. The panelists were of the opinion that CEFIPRA should give more concentration on Small & Medium Enterprises (SMEs) for improving competitiveness of industries of both the countries. Academia, Researchers, SMEs and Start-ups actively participated in the panel discussion and share their views. There was a strong suggestion that CEFIPRA should give financial support to the SMEs under the Industrial Research programme of CEFIPRA. Need to open Indo-French Innovation complex was also highlighted. The panellists concluded that CEFIPRA should encourage projects in niche areas like medical diagnostics which is the fast expanding market in India. They also underscore the need to utilize Indo-French challenges to initiate projects in PPP mode using the platform of CEFIPRA. CEFIPRA is ready to expand its S & T activities as a “joint Indo-French effort” in the Eastern & North Eastern Region of India. To embark on this journey, CEFIPRA welcomes all the stakeholders (Academia, Industry & Research Institutions) for furthering Indo-French Science, Technology & Innovation collaborations.

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**Scientific Council and Industrial Research Committee Meeting**

Fifty fourth meeting of the Scientific Council and twenty fifth meeting of the Industrial research committee of CEFIPRA were held during November 17-20, 2014, at Kolkata, West Bengal, India.

During the meetings project proposals received from researchers across different S&T domains were discussed and recommended for appropriate funding decisions based on scientific merit. Proposals received for holding seminars were also discussed during the meetings.

The area wise distributions of these recommended proposals are as depicted in the diagram.

During the meeting of Industrial Research Committee, it was suggested that CEFIPRA should organise more outreach programmes in SME clusters in India and pole de compétitivité in France. Consequently, the next outreach session would be organised at pole de compétitivité, France during which CEFIPRA’s goal would be to capture the problems faced by this cluster in France as well as India, and then find solution with the help of Academies of both the countries.
3rd Annual CEFIPRA Lecture Series

CEFIPRA initiated the CEFIPRA Annual Lecture Series in the year 2012 with an intent to increase the interactions between the best of S&T minds and young students and researchers from India and France.

The third CEFIPRA Annual Lecture Series was delivered by Prof Stéphane Noselli, Director, Institute of Biology (IBV) on 20th November, 2014 at Ballygunge Science College, University of Calcutta, Kolkata. The title of the lecture was ‘Left-Right Asymmetry: Lessons from Drosophila’. An interactive discussion followed the lecture where several students expressed a desire to work in Prof Stéphane Noselli’s research team. In view of the huge response and enthusiasm of the students, CEFIPRA has offered to support one Indian student to work under Prof Noselli’s guidance, in his lab in France.

Prof. Stéphane Noselli

An eminent geneticist and developmental biologist, his specific research interest is the genetics of development on the model organism ‘Drosophila’. He is credited with the identification of new genes controlling tissue bonding (a phenomena found in healing) and cell invasion (a phenomenon found during metasis) which has opened a new field of research called ‘situs inversus’ that guides the axis of left-right asymmetry of the body.

Apart from CNRS recognizing his discoveries with Silver and Bronze medals, the Academy of Sciences has also acknowledged his work on the left-right asymmetry as one of the ‘Big French Advances in Biology’.

Dr. Phillipe Arhets, Counsellor of Science and Technology
French Embassy in India

CEFIPRA welcomes Dr. Phillipe Arhets as the Counsellor of Science and Technology, French Embassy in India, since September 1st 2014.

Dr. Arhets began his career as a project officer in the Service Europe of the International Affairs Department of the Assistance Publique - Hopitaux de Paris (APHP). He joined INSERM in 2005 as Deputy Director of the Department of Regional and European Policy, specifically in charge of the European Division. In February 2010, he was appointed Director of International Affairs of INSERM with the mandate of defining a new international policy and its operational modalities of implementation for the institute.

A Ph.D. in Molecular and Cellular Biology from the University Paris-Sud, Orsay, Dr. Arbets also has a postgraduate degree in International and European affairs from the IAE Paris - Sorbonne University.
## Mobility of Scientists Supported Under CEFIPRA Projects

**October-December 2014**

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Name</th>
<th>Institutional Affiliation</th>
<th>Institution Visited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supra molecular approach to composite materials for advanced technologies</td>
<td>Andre Del Guerzo</td>
<td>Institut des Sciences Moléculaires, Université de Bordeaux, Bordeaux</td>
<td>Indian Institute of Science, Bangalore</td>
</tr>
<tr>
<td>Bimetallic Catalysis involving Ruthenium and Palladium: C-H Bond activation/Functionalization and beyond</td>
<td>Jean François Soulé</td>
<td>Université de Rennes, Rennes, France</td>
<td>Indian Institute of Technology, Kanpur</td>
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<tr>
<td>Extreme QCD in the LHC Era</td>
<td>Jean-Yves Ollitrault</td>
<td>Institut de Physique Théoriques, Gif-sur-Yvette, France</td>
<td>Tata Institute of Fundamental Research, Mumbai</td>
</tr>
<tr>
<td>Anti factor H autoantibody associated hemolytic uremic syndrome</td>
<td>Marie-Agnes Dragon-Durey</td>
<td>Laboratoire d’Immunologie, INSERM, Paris, France</td>
<td>All India Institute of Medical Sciences, New Delhi</td>
</tr>
<tr>
<td>Extreme QCD in the LHC Era</td>
<td>Stephane Peigne</td>
<td>Laboratoire de physique subatomique et des technologies associées, Nantes</td>
<td>Tata Institute of Fundamental Research, Mumbai</td>
</tr>
<tr>
<td>Integrating Hox and Chromatin Mediated Transcriptional Regulation</td>
<td>Yacine Graba</td>
<td>Institute for Developmental Biology, Marseille Luminy, University of Marseille, Marseille, France</td>
<td>Centre for Cellular and Molecular Biology, Hyderabad, India</td>
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<tr>
<td>Supra molecular approach to composite materials for advanced technologies</td>
<td>Udai Maitra</td>
<td>Department of Organic Chemistry, Indian Institute of Science, Bangalore</td>
<td>Institut des Sciences Moléculaires, Université Bordeaux 1, Talence, France.</td>
</tr>
<tr>
<td>Kinetics and Spectroscopy in Extreme Environments: Applications to Astrophysics and Astrochemistry</td>
<td>Elangannan Arunan</td>
<td>Inorganic and Physical Chemistry Department, Indian Institute of Science, Bangalore</td>
<td>Université de Rennes, Rennes, France</td>
</tr>
<tr>
<td>Kinetics and Spectroscopy in Extreme Environments: Applications to Astrophysics and Astrochemistry</td>
<td>Jayaram Vishakantaiah</td>
<td>Solid State and Structural Chemical Unit, Indian Institute of Science, Bangalore</td>
<td>Université de Rennes, Rennes, France</td>
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</table>
### Mobility of Scientists Supported Under CEFIPRA Projects

**October-December 2014**

<table>
<thead>
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<th>Project Title</th>
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<th>Institutional Affiliation</th>
<th>Institution Visited</th>
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<tbody>
<tr>
<td>Molybdenum-containing Enzymes: Bioinspired Peptidic Catalysts for CO₂ reduction</td>
<td>Olga Iranzo Casanova</td>
<td>Institut des Sciences Moléculaires de Marseille Marseille, France</td>
<td>Indian Association for Cultivation of Science Kolkata, India</td>
</tr>
<tr>
<td>Survey of soil-Si pools and Contribution of Si Fertilization in a Sustainable Rice Cultivation in South India</td>
<td>Doris Barboni</td>
<td>Centre Européen de Recherche et d’Enseignement des Géosciences de l’Environnement, Aix-Marseille Université</td>
<td>University of Agricultural Sciences Bangalore</td>
</tr>
<tr>
<td>Survey of soil-Si pools and Contribution of Si Fertilization in a Sustainable Rice Cultivation in South India</td>
<td>Catherine Keller</td>
<td>CEREGE, UMR 7730:CNRS/Aix-Marseille Université</td>
<td>University of Agricultural Sciences Bangalore</td>
</tr>
<tr>
<td>Tropical Cyclones in the Bay of Bengal: Oceanic Response and Air-Sea Interactions</td>
<td>Jerome Vialard</td>
<td>Laboratoire d’Océanographie et de Climatologie: Experimentation et Analyses Numériques</td>
<td>National Institute of Oceanography Goa</td>
</tr>
<tr>
<td>Molybdenum-Containing Enzymes: Bioinspired Peptidic Catalysts for CO₂ Reduction</td>
<td>Marius Réglier</td>
<td>Institut des Sciences Moléculaires de Marseille Aix-Marseille Université, Marseille, France</td>
<td>Indian Association for Cultivation of Science Kolkata</td>
</tr>
</tbody>
</table>

### Mobility of Scientists Supported Under DST-INRA Targeted Programme

<table>
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<tr>
<th>Adaptation of Irrigated Agriculture to Climate Change</th>
<th>Martine Guerif</th>
<th>INRA / UMR 1114 EMMAH, 84914 AVIGNON Cedex 9, France</th>
<th>Indian Institute of Science Bangalore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptation of Irrigated Agriculture to Climate Change</td>
<td>Samuel Buis</td>
<td>INRA / UMR 1114 EMMAH, AVIGNON, France</td>
<td>Indian Institute of Science Bangalore</td>
</tr>
<tr>
<td>Adaptation of Irrigated Agriculture to Climate Change</td>
<td>Patrick Durand</td>
<td>Institut National de la Recherche Agronomique, Rennes, France</td>
<td>Indian Institute of Science Bangalore</td>
</tr>
<tr>
<td>Adaptation of Irrigated Agriculture to Climate Change</td>
<td>Eric Casellas</td>
<td>Institut National de la Recherche Agronomique, Toulouse, France</td>
<td>Indian Institute of Science Bangalore</td>
</tr>
<tr>
<td>Adaptation of Irrigated Agriculture to Climate Change</td>
<td>Hélène Raynal</td>
<td>Institut National de la Recherche Agronomique, Toulouse, France</td>
<td>Indian Institute of Science Bangalore</td>
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</table>
### MOBILITY OF STUDENTS SUPPORTED UNDER CEFIPRA PROJECTS

**OCTOBER-DECEMBER 2014**

<table>
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<th>Name</th>
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<tbody>
<tr>
<td>Biotechnology</td>
<td>Rahul Kumar</td>
<td>Tezpur University</td>
<td>Laboratoire des Interactions Plantes Micro-organismies Castanet Tolosan, France</td>
</tr>
<tr>
<td>Glycochemical Biology</td>
<td>Sunchu Prabhakar</td>
<td>Indian Institute of Chemical Technology Hyderabad</td>
<td>Ecole Nationale Superieure de Chimie de Rennes Rennes, France</td>
</tr>
<tr>
<td>Life and Health Sciences</td>
<td>Aparna Sundaresan</td>
<td>Jawaharlal Institute of Post Graduate Medical Education &amp; Research Pondicherry</td>
<td>INSERM Saint Louis Hospital University of Paris, Paris-Diderot, France</td>
</tr>
<tr>
<td>Computer and Information Sciences &amp; Materials Science</td>
<td>Saurabh Nagar</td>
<td>Indian Institute of Technology Mumbai, India</td>
<td>Institut des Nanotechnologies de Lyon Ecole Centrale de Lyon Ecully, France</td>
</tr>
<tr>
<td>Environmental Sciences</td>
<td>Bharti Thakur</td>
<td>Dept. of Biotechnology Thapar University Patiala, India</td>
<td>Universite de Lyon1 Villeurbanne, France</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Harsh Purohit</td>
<td>Indian Institute of Technology Mumbai, India</td>
<td>Laboratoire d’Informatique de Nantes-Atlantique, Universite de Nantes Nantes, France</td>
</tr>
<tr>
<td>Pure and Applied Physics</td>
<td>Tridib Sadhu</td>
<td>Tata Institute of Fundamental Research, Mumbai, India</td>
<td>Institut de Physique Theorique Gif-sur-Yvette, France</td>
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</table>

### RAMAN CHARPAK FELLOWS 2014

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<tbody>
<tr>
<td>Chemical Sciences</td>
<td>Krishna Gavvala</td>
<td>Indian Institute of Scientific Education and Research, Pune, India</td>
<td>Laboratoire de Biophotonique et Pharmacologie, Universite de Strasbourg Strasbourg</td>
</tr>
<tr>
<td>Engineering Sciences</td>
<td>Gopi Shrikanth Reddy</td>
<td>Indian Institute of Technology, Mumbai, India</td>
<td>University Pierre and Marie CURIE Paris, France</td>
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</tbody>
</table>
**Jean Chambaz | Interview**

*contd. from pg. xiv*

It will be the best way to make strong links between Indian and French teams, of course when you share the same PhD, you share the same project and you share a unique human experience.

**ENSEMBLE** : Outside medicine, which are the most prominent areas where Indian and French researchers should be working together?

**JC** : First is Environmental Transition i.e. how we deal with Climate Change and find solutions to the same. Second is Information Technology. We are increasingly a digital world. We have to build new practices and tools to take the benefits of digitization to the economy and society. India is very strong in Computer Sciences. So we have a lot of things to do together on big data, data mining and so on. The third area according to me is New Materials. Natural resources being limited, we have to work on finding new materials to sustain the development of society, and meet the needs of population of the world.

**ENSEMBLE** : What brings you to India this time? What do you expect to take away?

**JC** : Meeting your peers face to face is a reason by itself. Additionally, we want to identify strategic partners and work with them to develop a sustained S&T cooperation by exchanging students, doctoral candidates and academic staff. One purpose of this visit is obviously to meet some of the many very numerous excellent Indian institutions and find the best match the best to start this cooperation.

**ENSEMBLE** : What role can an organization like CEFIPRA play a role in your quest?

**JC** : As I said, our priority is to exchange people and to make Indian researchers to come to France and also enable French students and staff to come to India and experience India. And I am sure that CEFIPRA would be a perfect vehicle to help us find a good way to achieve this objective by acting as a bridge between us, and our prospective partners.

**RAMAN CHARPAK FELLOWS 2014**

<table>
<thead>
<tr>
<th>Field</th>
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<th>Institution</th>
<th>Location</th>
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<tbody>
<tr>
<td>Engineering Sciences</td>
<td>Mukta Singh Parihar</td>
<td>Indian Institute of Technology, Indore, India</td>
<td>Institute of Microelectronics, Electromagnetism and Photonics, Grenoble, France</td>
</tr>
<tr>
<td>Life Sciences</td>
<td>Tarun Keswani</td>
<td>Department of Zoology, University of Calcutta, Kolkata</td>
<td>Institut Pasteur de Lille, Calmette, France</td>
</tr>
<tr>
<td>Engineering Sciences</td>
<td>Sivasakthivel T</td>
<td>Indian Institute of Technology, Roorkee, India</td>
<td>Geological and Mining Research, Bureau Orleans, France</td>
</tr>
<tr>
<td>Material Sciences</td>
<td>V Ramireddy Devarapalli</td>
<td>National Chemical Laboratory, Pune, India</td>
<td>Institut de Recherche Interdisciplinaire, Villeneuve d’Ascq, France</td>
</tr>
<tr>
<td>Atmospheric and Earth Sciences</td>
<td>Sudhanshu Kumar</td>
<td>National Physical Laboratory, Delhi, India</td>
<td>Institute of Analytical and Physicochemical Sciences, Pau University, France</td>
</tr>
<tr>
<td>Chemical Sciences</td>
<td>Jlassi Khouloud</td>
<td>University of Paris Diderot, Paris, France</td>
<td>International and Inter University Centre for Nanoscience and Nanotechnology, Kerala</td>
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</tbody>
</table>
CEFIPRA's participation in EITS 2014

Euro India Technology Sourcing & Business Opportunities (EITS 2014) was organized at Metz, the capital of the Lorraine region, on 9-10 December 2014. The focus of EITS 2014 was on the strategic sectors of materials, energy and processes.

Moselle region of France has world class infrastructure in its more than 40 industrial parks and has emerged as a leader in transportation industry with the presence of organisations like Arcelor Mittal, Daimler, Peugeot, Thyssen, Tata-Corus etc. About 100 companies participated in this convention. CEFIPRA also participated in EITS 2014 to disseminate information about its activities among the participants. This was important as CEFIPRA’s engagement with institutions in north-eastern France has not yet developed to the extent that it is possible. CEFIPRA’s stall at EITS 2014 was inaugurated by His Excellency Mr. Arun Kumar Singh, India’s Ambassador to France. The meet afforded CEFIPRA a good platform for establishing new contacts in the Lorraine region of France.●

New Trends in Chemistry and Chemical Biology

The conference on “New trends in chemistry and chemical biology” was held at Puducherry, India from 9-12 November 2014 with CEFIPRA’s support. The aim of the conference was to initiate new proposals for joint projects and cooperation by young researchers between India and France. The participants deliberated on issues and challenges in the field of chemistry related to CNS disorders, anti-cancer therapeutics, functional materials, novel methodologies, total synthesis of natural products and other related subjects. The goal was to identify possible areas of collaboration and crystallising joint project ideas.

The conference was attended by more than 60 participants including experts from industry and the academia. Dr. Phillipe Arhets (Counsellor, French Embassy at Delhi), Dr. Jennifer Clark (Attaché S&T, French Embassy at Bangalore), Dr. Dominique Aymer de la Chevalarie (CNRS office at Delhi), Professor Govardhan Mehta (National Research professor at Univ. of Hyderabad), Dr. Renee Gree (Emeritus, CNRS Director of Research at University of Rennes) and Dr. J S Yadav (Former Director, IICT) were among the distinguished participants.●
CALL FOR PROPOSALS

High Impact Scientific Research Network Programme

Indo-French Centre for the Promotion of Advanced Research (CEFIPRA) is India’s first and France’s only bilateral organization which has been in existence for the past 27 years, committed to promote collaboration between the scientific communities of France and India across the knowledge innovation chain. Since this centre has been traditionally associated with bridging of individual scientist of two countries in a collaborative mode, after 27 years, a rich plethora of scientists and scientific group are well networked. Further, over the years, support from national funding agencies from both the countries has been increased in Science and Technology. Recognising this, CEFIPRA announces High Impact Scientific Research Network Programme & invites pre-proposal from the Indian and French scientific communities.

Eligibility:

• Permanent position in an Indian or French University / R & D Institute
• Successful nationally funded scientific groups from India & France
• There could be minimum three partners from each side
• Proposal must be submitted jointly

All areas of interest in Science & Technology between India and France with special emphasis on the following areas

- Optics
- Nano sciences
- Cold atoms
- Synchrotron Science
- Computer Science & Bio-informatics
- Energy storage devices
- Metabolic disorder
- Infectious diseases

For details regarding the application process, format, supporting documents and funding pattern please visit www.cefipra.org or contact:

The Director
Indo-French Centre for the Promotion of Advanced Research (Centre Franco-Indien pour la Promotion de la Recherche Avancée) 5B, Ground Floor, India Habitat Centre Lodhi Road, New Delhi 110 003 (India)
Email: director@cefipra.org • Website: www.cefipra.org | Tel.: +91-11 2460 2432 Fax: +91-11 2464 8632

DEADLINE FOR SUBMITTING OF PROPOSALS: 15TH FEBRUARY, 2015

Indo-French Centre for the Promotion of Advanced Research (CEFIPRA) 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.

For further information please contact:

Director
Indo-French Centre for the Promotion of Advanced Research
5B, Ground Floor, India Habitat Centre, Lodhi Road, New Delhi-110 003 INDIA
Tel: 011 2468 2251, 2468 2252, 2463 3567, 4352 6261
Fax: +91 -11-2464 8632
E-mail: director@cefipra.org | Web: www.cefipra.org