Indo-US Science & Technology Forum

Connect

Newsletter of IUSSTF

Volume 7 (3) | January 2016

IUSSTF
Indo-US Science and Technology Forum

India-US S&T Collaboration

A Defining Partnership

CONTENT

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From the Editor-in-Chief

Now more than five decades old, the India-US partnership in science and technology is founded on the constant exchange of ideas and people between the two nations. The level of engagement between the Governments of our two great democracies has increased considerably over the last few years and this trend continues to move ahead. The Indo-US relationship has transformed into a strategic partnership centered on the common principles of shared values and beliefs. We continue to tirelessly work together on issues such as education, food security, clean energy, climate change, affordable healthcare, and homeland security – issues that touch the lives of not only our people, but the world at large. To quote the 2015 India-US Joint Statement, *"Rooted in shared democratic values and sustained by the ties between Indians and Americans that have strengthened and enriched both nations, both sides affirm that together the United States and India would continue to expand and deepen their engagement, to build a defining partnership for the 21st century."*

For fifteen years now, the ***Indo-US Science and Technology Forum*** has been a beacon of this transformative relationship! IUSSTF has made its mark as a dynamic, nimble and assimilative platform that has been able to meet the aspirations of its stakeholders both in India and the United States through a diverse and evolving program portfolio. By adopting innovative approaches, IUSSTF has been able to provide a stage to thousands of Indian and American scientists, engineers, entrepreneurs and students to benefit through our programs and accelerate the development of all those great ideas and energy into broadly-accessible technology solutions.

As I take over the reins of IUSSTF, I look forward to your continued support of our activities. In its fifteen-year journey, it is possibly the right time now to take a moment to ask ourselves "what are we missing?" and "how can we do more?" The answers would define not only how IUSSTF moves ahead, but also outline the power of the Indo-US S&T community to create new opportunities and address some pressing global challenges. As the leading knowledge economies of the world collaborate to solve the world's problems, I am confident that IUSSTF will continue to play an increasingly important role in catalyzing these interactions.

Rajiv Kumar Tayal
Executive Director, IUSSTF

REPORT

Shared Effort | Progress for All

Excerpts from the Joint Statement | September 22, 2015

Strategic Cooperation in Global Issues

The Sides recognized that the India-U.S. Partnership was a significant contributor to the peace, stability and prosperity in the Indian Ocean and Asia-Pacific regions and around the globe. Building on successful cooperation in Asia, the Sides welcomed continued cooperation under the Joint Strategic Vision for the Asia-Pacific and Indian Ocean Region agreed by President Obama and Prime Minister Modi.

The U.S. Side commended India's leadership in evacuating foreign nationals including U.S. citizens, from conflict in Yemen, as well as cooperation between the United States and India on providing earthquake relief in Nepal. The Sides resolved that India and the United States would work as partners in responding to the needs of civilians in global crises. Recognizing the centrality of peacekeeping to the UN's efforts for maintenance of international peace and security, the Sides committed to enhance cooperation in peacekeeping capacity building in third countries with a focus on training aspects for UN peacekeepers, especially in identified African countries.

The Sides reflected on their shared commitment to peaceful use of the oceans, freedom of navigation, and protection of the ocean ecosystem. They agreed to explore a new Oceans Dialogue to promote sustainable development of the blue economy.

Assessing their outer space cooperation, the Sides noted the launch of a new Space Security Dialogue in March 2015, the exchange of technical data from both countries' national Mars orbiters, and upcoming Civil Space Joint Working Group in Bangalore. The U.S. side applauded India's proposal to launch a satellite for the South Asian Association for Regional Cooperation (SAARC) in order to expand information sharing and connectivity within the SAARC region. In this spirit, the Sides renewed the U.S.-India Technology Safeguards Agreement to facilitate the launch of U.S. satellite components on Indian space launch vehicles.

On cyber issues, the Sides supported an open, inclusive, transparent, and multi-stakeholder system of internet governance and planned to work together to promote cyber security, combat cyber-crime, and advance norms of responsible state behavior in cyberspace. They agreed to improve cooperation among technical, law enforcement, cyber R&D, and capacity building. The Sides commended the resumption of the U.S.-India Cyber Dialogue. The Sides welcomed the decision to convene a Track 1.5 program to further cooperation on internet and cyber issues and contribute to the goals of Digital India initiative.

Economic Growth

Emphasizing the importance of building commercial ties to drive the U.S.-India partnership forward, the Sides reviewed the outcomes of the first meeting of the reconstituted and expanded U.S.-India CEO Forum held on September 21, 2015. They were briefed on the Forum's recommendations by its U.S. and Indian co-chairs as part of enhanced discussions on commercial and economic issues.

United States Secretary of State John Kerry and Secretary of Commerce Penny Pritzker welcomed India's External Affairs Minister Sushma Swaraj and Minister of State for Commerce and Industry Nirmala Sitharaman for the first U.S.-India Strategic and Commercial Dialogue held in Washington DC on 22 September 2015.

The Sides appreciated the intense engagement between India and the United States under various institutional bilateral dialogue mechanisms and people-to-people contacts.

The Sides applauded the focus on Innovation and Entrepreneurship as an area for cooperation. They agreed to facilitate an innovation forum in 2016, a platform for U.S. and Indian entrepreneurs to share best practices in promoting a culture of innovation and the creation of sister innovation hubs.

The Sides announced a private sector-led collaboration between the Confederation of Indian Industry (CII) and the American National Standards Institute (ANSI) to maintain and update a portal containing standards information for the use of industry, including small- and medium-sized enterprises. The Sides agreed

The Sides welcomed India's announcement to hold a regional Pravasi Bhartiya Divas (PBD) in Los Angeles in November 2015, to further increase people-to-people contacts between the two countries. Both Sides assessed that ties between the United States and India have never been stronger – as reflected by unprecedented strategic cooperation, record levels of bilateral trade and investment, and more than 2 million annual visits between their citizens, students, and entrepreneurs. The Sides pledged to build on this momentum by pursuing new areas of collaboration, leveraging the talents of government and the private sector to make their nations more secure and prosperous.

to explore opportunities for cooperation in the development of reference materials between the National Physical Laboratory (NPL) in India and the National Institute of Standards and Technologies (NIST) in the United States. They committed to exchanges between certain regulators with a view to minimizing regulatory barriers to bilateral trade.

Building on the success of the 2014 U.S.-India Commercial Dialogue on corrosion control, the Sides agreed to continue this public-private collaboration. They recognized India's work to launch a National Mission on Corrosion Control Technologies and Standards.

The Sides committed to accelerating progress in infrastructure collaboration. Both sides welcomed the start of Smart City master planning activities in Vizag led by a U.S. private sector consortium. Building on this momentum, the U.S. Side looked forward to working with the Indian Ministry of Urban Development on a Smart Solutions for Smart Cities Reverse Trade Mission visit to the United States coordinated by the U.S. Trade and Development Agency. India welcomed a Smart Cities Infrastructure Business Development Mission in February 2016 led by the Deputy Secretary of Commerce.

Responding to India's request for support in developing evaluation techniques for Massive Open Online Courses and Distance Education Courses, the United States agreed to facilitate discussions with U.S. industry experts specializing in this subject.

Reflecting that the strength of a nation depends on the health of its people, the Sides reviewed progress from the first meeting of the U.S.-Health Dialogue, welcoming recent cooperative agreements to enhance cooperation in the field of cancer research, prevention, control and management; environmental and occupational health and injuries prevention and control; and LOI on research on antimicrobial resistance. It was agreed that both sides will work together to consider signing a MoU in the field of Mental Health and a MoU between the Ministry of AYUSH and HHS on collaboration in various aspects of Traditional Medicine, including regulatory and capacity building. AYUSH will be organizing a joint workshop with NIH in early 2016 in India to discuss research collaboration on traditional medicine.

The Sides highlighted the global effort led by India, the United States, and other partners, to end preventable maternal and child deaths. They hailed the Delhi Declaration signed by 22 nations in August 2015. Both Sides agreed to discuss a mutually agreed action plan and joint initiatives, including capacity building, to carry forward cooperation on women's economic empowerment, among other women's issues.

U.S. Side affirmed that it stands ready to assist in India's ambitious goal of providing skills training to 400 million people over the next decade. In anticipation of the next Higher Education Dialogue, the U.S. side intends to create new programs to build capacity for curriculum and teacher development. They also noted the need to continue efforts to implement the decisions taken during previous summits of leaders of the two countries including the knowledge partnership for supporting the IIT Gandhinagar through USAID and in India's Global Initiative for Academic Network (GIAN).

The Sides expressed satisfaction at the progress made on Science, Technology and Innovation collaboration after the meeting of India-U.S. Joint Commission on Science & Technology in November 2014 in New Delhi. A new working group on Agriculture Biotechnology has been established to promote Agriculture Science & Technology Research collaboration led by India's Department of Biotechnology and US Department of Agriculture. Under 'Discovery Science' India's Department of Atomic Energy and U.S. Department of Energy are working together to develop a High Intensity Superconducting Proton Accelerator (HISPA). Under the U.S.-India Endowment Fund, prototypes of several innovative technologies have been jointly developed with potential for societal use and commercial application.

Energy and Environment

Recognizing the profound threat of global climate change, the Sides stressed the importance of working together and with other countries to conclude an ambitious climate agreement in Paris in December 2015, understanding that meeting this goal will require concerted action by all countries and the international community.

The Sides looked forward to the early signing of a new five year Memorandum of Understanding on Energy Security, Clean Energy and Climate Change. The Sides welcomed the productive meeting of the U.S. - India Energy Dialogue and looked forward to expanding bilateral engagement in this field including in the field of renewable energy and energy efficiency, as well as to develop and exchange information on cleaner fossil energy resources such as unconventional oil and gas and carbon capture sequestration.

In particular, the two sides welcomed significant progress in implementing President Obama and Prime Minister Modi's commitment to strengthen and expand the highly successful U.S.-India Partnership to Advance Clean Energy (PACE), including:

- Greening the Grid, a U.S. $30 million, 5-year initiative to scale up renewable energy integration into India's power grid.
- Two activities to promote off-grid clean energy access: the PACEsetter Fund, a joint U.S. $7.9 million fund for innovative off-grid clean energy projects and a new public-private partnership that will work to mobilize U.S. $41 million in finance for clean energy entrepreneurs.
- Research on smart grids and energy storage for grid application as the fourth stream under PACE – R.

The Sides noted conclusion of the first phase of the U.S.-India Clean Energy Finance Task Force and in the next phase will deepen engagement through design and implementation in a time bound manner of select pilot projects in catalyzing accelerated flows of untapped sources of capital to support India's ambitious clean energy goals.

The Sides convened the second round of bilateral consultations under the India-U.S. Joint Working Group on Combating Climate Change, continuing their enhanced dialogue on multilateral negotiations and strengthening bilateral efforts in the areas of clean energy, adaptation, forest sector programs, and air quality.

Drawing on the academic and scientific cooperation that underpins the U.S.-India partnership, the Sides looked forward to launch a new Fulbright-India Climate Fellowship for capacity building in climate research between India's Department of Science and Technology and the U.S. Department of State.

Noting the importance of preserving the environment and sustaining diverse ecosystems, and acknowledging the rise of international criminal networks engaged in wildlife trafficking, the Sides appreciated finalization of an MOU to enhance their cooperation on conservation and combat wildlife trafficking. The U.S. Side offered support to India's Project Tiger designed to protect the population of Bengal tigers in their natural habitats. The Sides agreed to work together to use the latest technology to combat poaching and protection of tigers in India.

Rooted in shared democratic values and sustained by the ties between Indians and Americans that have strengthened and enriched both nations, both sides affirmed at the close of the dialogue that together the United States and India would continue to expand and deepen their engagement, to build a defining partnership for the 21st century.

Minister Swaraj, on behalf of the Indian delegation, thanked Secretary Kerry and the U.S. delegation for hosting the first Strategic and Commercial Dialogue in Washington DC. It was agreed to convene the next round in India in 2016.●

Text Courtesy: U.S. Department of State
http://www.state.gov/r/pa/prs/ps/2015/09/247192.htm

REPORT

U.S.-India Energy Dialogue

Washington D.C. | September 21, 2015

Excerpts from the Press Release

The **U.S. - India Energy Dialogue** was held on September 21, 2015 at the U.S. Department of Energy. The Indian delegation was led by Mr. Piyush Goyal, Hon'ble Minister of State (IC) for Power, Coal, New and Renewable Energy, Govt. of India. The U.S. side was led by Dr. Ernest Moniz, the U.S. Secretary of Energy. The Dialogue reviewed the progress made by the six Working Groups and identified new areas for cooperation. They also reviewed various energy related issues agreed in the India – U.S. Joint Statement during President Obama's visit to India in January 2015.

Minister Goyal stressed on the objective of the Government of India to provide 24x7 power across India by 2019 by creating cost effective infrastructure which was sustainable and inclusive of clean energy solutions. He emphasized that India was committed to pursue a green path to growth. He also elaborated on India's ambitious plans for deployment of 175 GW Renewable Power capacities by 2022, including 100 GW of solar and 60 GW of Wind, which may require investment of around U.S. $ 150 billion in the next seven years.

During the Dialogue, presentations were made on progress made under the Partnership to

Advance Clean Energy - Research (PACE - R), including in the field of solar energy, energy efficient buildings and biofuels. Substantial headway has been made for the development of new technologies for distributed power generation through solar thermal route and development of new tools for improved building energy efficiency codes. It was also agreed to explore addition of smart grids and energy storage for grid application as the fourth stream under PACE - R.

Presentations were also made on various aspects of integration of clean energy sources into existing energy infrastructure in India, as well as mechanisms for promoting financing for clean energy and cleaner fossil energy sources. Avenues for advancing off-grid clean energy access were also discussed in depth during the Dialogue. Bearing in mind the commitment of both countries to climate change, the focus of the meeting revolved on various dimensions of clean energy in order to ensure that people have access to adequate and affordable energy for better quality of life and sustainable livelihood.

While capturing the activities of the Energy Dialogue in the last 10 years, the two Minister's recognized that this was an appropriate forum for India and the U.S. to identify various aspects of technical assistance in Energy sector as well as launch of pilot projects which can be scaled up at a later stage. The Indian delegation appreciated the activities of DOE, USAID and USTDA in various aspects of the energy sector in India especially for technical assistance in research, data collection, and development of various regulations as well as for improving energy efficiency appliances.

Prior to the Ministerial Dialogue, all the six Working Groups under the Energy Dialogue held extensive deliberations on September 16-18, 2015. Discussions were also held in the working groups on financing of clean energy technology as well as on innovative financing for renewable energy microfinance and micro enterprises.

Discussions were held on various aspects, including advantages and challenges of greening the grid, i.e., to integrate large scale renewable energy sources into the electricity grid. Joint work under the 21st Century Power Partnership

> "Minister Goyal stressed on the objective of the Government of India to provide 24x7 power across India by 2019 by creating cost effective infrastructure which was sustainable and inclusive of clean energy solutions."

Text courtesy:
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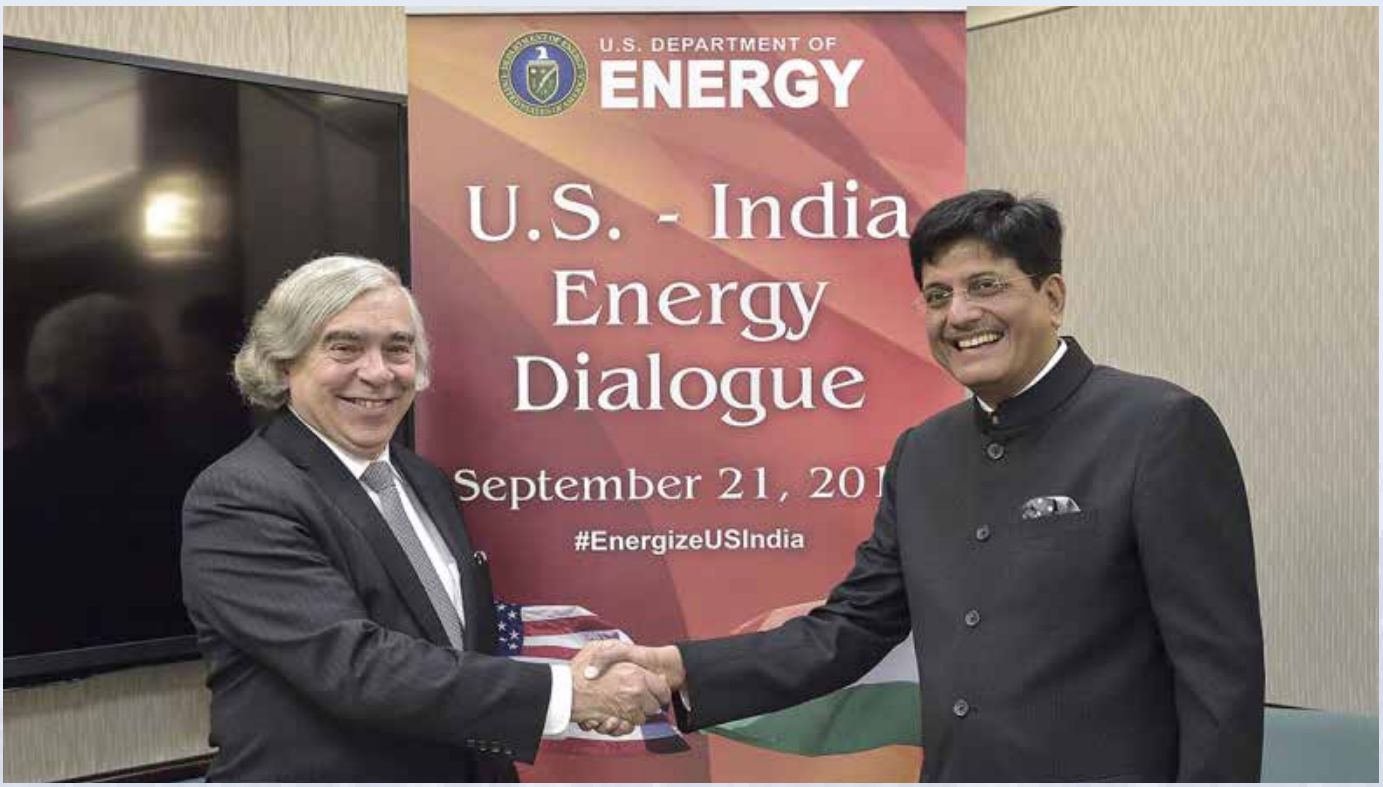
Excerpts from the Press Release



> While capturing the activities of the Energy Dialogue in the last 10 years, the two Ministers recognized that this was an appropriate forum for India and the U.S. to identify various aspects of technical assistance in Energy sector as well as launch of pilot projects which can be scaled up at a later stage

laid the foundation for the "Greening the Grid" programe. In the power and energy efficiency working group, in addition to scaling up of the existing collaboration, it was decided to work in the future on energy efficiency in the following areas, namely a) Low Waste Heat Utilisation; b) Data Centre energy efficiency and c) Space cooling.

The working groups also explored various options of translating joint research being undertaken under this mechanism to effective deployment by integrating research with deployment ("PACE-R" with "PACE-D"). It was also agreed to significantly scale up Promoting Energy Access through Clean Energy (PEACE), (India – U.S. off-grid clean energy partnership), and develop innovative mechanisms to encourage participation of private sector investments for off-grid solutions.

While recognizing that coal based power plants would continue to be the mainstay of India's electricity generation source in the coming decades, The Indian delegation urged the U.S. to share technology related to supercritical coal plants as well as share best practices and tools to improve efficiency and carbon footprint of existing power plants. It was agreed to expeditiously conclude the following MoUs a) between National Energy Technology Laboratory (NETL) of the U.S. and NTPC of India to improve power plant efficiency; b) to enhance cooperation on energy security, clean energy and climate change; as well as c) on Gas Hydrates.

This Dialogue is also an affirmation of the fact that both countries have a strong commitment to collaborate in the energy sector and promote greater technological innovation, scientific collaboration, trade, research and development, deploying environment-friendly technologies and products, and promote sound regulatory frameworks to deliver energy solutions for sustainable growth.

Giving *Wings* to Talent

To address the need for human resource development and capacity building in science and technology, the Indo-U.S. Science and Technology Forum (IUSSTF) is committed to nurture contacts between students of science and technology from India and the United States. It has been unambiguously demonstrated that providing students and young scientists with an exposure to cutting-edge scientific research experiences at a formative stage not only broadens their intellectual horizons but also leads to increased engagements in scientific and technological research careers. We share with you the experiences of some of our bright, young fellows and interns in their own words!

Bhaskara Advanced Solar Energy Fellowship Program

Vishal Bharti
CSIR-National Physical Laboratory, New Delhi

"It was December 26 - the luckiest day of 2014, when I got a mail from IUSSTF stating that "Congratulations! Vishal, you have been selected for the prestigious BASE Fellowship." I was keenly interested to learn more about advanced organic photovoltaics, so I selected Prof. Yang Yang's group (Department of Material Science, UCLA, USA), which is the leading group in the field of organic tandem and pervoskite solar cells. Prof. Yang Yang's group has set up many world records in this field. During my 3 months BASE student Internship, I learnt many new things. Prof Yang and Dr. Gang Li designed my project as "To study the effect of ozone on active layer of polymer solar cell". I have also optimized interconnecting layer for organic tandem solar cell and learned device fabrication of Perovskite solar cell. The members of this group were very helpful and cooperative. My colleague Shang (PhD student) helped me to get familiar with the UCLA campus and work environment. And last but not the least; I am very thankful to DST, Govt. of India and IUSSTF for offering me such an opportunity. I would like to acknowledge the Director, National Physical Laboratory, India (parent institute), my supervisors (Dr. Vinay Gupta, Dr. Suresh Chand) and finally staff of IUSSTF for their continuous help and support during my whole visit."

For more information on the Bhaskara Advanced Solar Energy Fellowship Program:
Webpage: http://www.iusstf.org/story/53-59-Bhaskara-Advanced-Solar-Energy-Fellowship-Program.html
E-mail: jcerdc@indousstf.org

Khorana Program for Scholars

Khorana Program - where to begin and what to say, when its name says it all! It was a proud moment for me to get associated with Dr. Har Gobind Singh Khorana's name. I had ten memorable weeks in the United States and it's still hard to believe that I am a part of such a prestigious program. It was my dream to work in the field of autoimmunity owing to various unanswered questions in my mind. Khorana Program came as a ray of hope that not only made this dream possible but also took me to the center of world-class research. I was fortunate to work under the mentorship of Prof. Tanya N. Mayadas at Harvard Medical School on the Role of Fcγ receptors in SLE pathogenesis. Systemic lupus erythematosus (SLE) is a multisystem autoimmune disorder with circulating autoantibodies and Fcγ receptors help in eliminating invading pathogens. My project was to study the role of hFcγRIIIB in SLE pathogenesis. I got the privilege to be part of the latest research in this field, learnt new techniques, interacted with eminent scientists, attended various conferences and seminars, explored new places like Boston, New York and Chicago and became friends with people from across the globe. This wasn't just a research internship program - it had a deeper impact on my life as I learned how to live independently, without my parents, in a new country. It was a life changing experience for me which broadened my intellectual horizons and helped to shape my personality. This program motivated me, boosted my confidence and was instrumental in guiding me towards the path to become a scientist. The trust that India has bestowed on me inspires me to work harder and give back to the country by doing good research so that it becomes biotechnologically advanced nation!

Anukriti Mathur
Birla Institute of Technology and Science (BITS) - Pilani

For more information on the Khorana Program for Scholars:
Webpage: http://www.iusstf.org/story/53-50-Khorana-Program.html
E-mail: scholar@indousstf.org

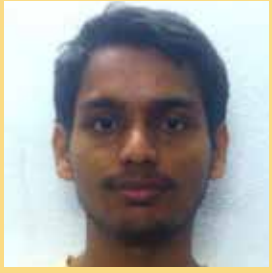
Viterbi-India Program

Amidst the summer internship frenzy in my third year of undergraduate studies at BITS Pilani, I narrowed my eyes on the prestigious Viterbi-India scholarship program for a research internship at the University of Southern California. The results were out in January after a month long wait, and I was surprised at the speed at which the other Viterbi-India interns made friendly ties with each other and the frantic search for accommodation in Los Angeles! Everything was pre-planned, thanks to social media, flight seats were booked together and accommodation was taken nearby, bank accounts, sim cards and what not! In the summer of 2015, I found myself with 20 brilliant minds from across the country with varied cultural diversities but united by the country of our origin – India. It was our own little India amidst the land of Stars and Stripes. I was working under Prof. Craig Knoblock at the Information Sciences Institute, Marina Del Rey. The project I worked upon was in the domain of data integration and artificial intelligence. The task at hand was to automatically map datasets to large real world ontology – schema.org. We trained upon nearly 1 terabyte of data and in the future will expand up to 25 terabytes. Big data is the new oil in the industry, and new methods are being employed to refine it, thus the exposure to this new trend and working with it was a career re-defining experience all together.

All 21 of us along with our friends from Caltech and UCLA would hang out together and we would etch memories that would last a lifetime. We ended up going to Malibu – the most expensive city in the world, a trek to the Hollywood sign – a 17 km long trek!, Six Flags Magic Mountain – the adrenaline rush of the roller coasters that made us forget our fears, San Francisco – the city that stole our hearts, Las Vegas – most of us being under 21 we might have to plan a trip again to the sin city, 4th of July fireworks- the only time in U.S. when it is legal to burst firecrackers and an unending list of attractions! From trying a lot of different cuisines to endless hours shopping for friends and cousins, every moment is remembered. I wish I had a pensive like Dumbledore so that I could treasure my memories forever!

I am highly grateful to the Indo-US Science and Technology Forum who made this internship a smooth sail for all of us. Made friends for a lifetime, did some great work in the big data field and made the most of the opportunity I had - 'the internship' was an experience that will be close to my heart for a long time indeed.

Aditi Gupta
Birla Institute of Technology and Science (BITS) - Pilani



Atharva Wazurkar
International Institute of Information Technology (IIIT) - Hyderabad

The two months I spent at the University of Southern California were the best and most memorable part of my life. I would like to thank IUSSTF for providing me such a wonderful opportunity which helped me shape my career. My faculty mentor Dr. Peter A. Beerel was very supportive and helpful. I could learn a totally new domain of Asynchronous VLSI within a very short span with the guidance of my mentor. The involvement of faculty mentor was wonderful - we had discussions on the project along with brainstorming on new ideas and designs for circuits. We had group meetings every week where

everyone used to present their work and this way one remained updated with what others were doing in your group and also got to expand our knowledge base. The best part of meetings is that everyone is given the freedom to express their ideas and suggestions even if you are just an undergraduate intern. We worked on the current state-of-art of 28 nm technology and designed Digital to Analog Converter for delay lines, where we used various unconventional approaches for designing. I also got an opportunity to work with students from different countries from whom I learned about new cultures. USC also has its own sports stadium, where I got a chance to play soccer with local players. I met new people in a new country and made new friends. Along with other Viterbi Interns, I used to go out and travel on weekends. We explored lots of places in California from Hollywood, beaches, San Francisco to Las Vegas. Overall the internship was a great experience; it provided an exposure to an awesome research community and equipped me better for my future career!

"The Viterbi-India Program is indeed very well structured, research oriented and a great learning experience for undergraduates. It opens the doors of learning. It gave me not only the chance to meet some of the best minds in electrical and computer science engineering, doing best researches in their fields, but also gave me an opportunity to interact with my fellow interns who came from different parts of the country. The campus is located in a beautiful part of Los Angeles. The connectivity is good and the climate is always pleasant. Coming from a very hot and dry place like Ahmedabad, it was more than what I could ask for! The entire program right from the Safety Awareness Session on the first day till the Poster Presentation session on the last day was very well planned and thought of.

My research work was on Demand Response (DR) which is one of the events wherein customers voluntarily or mandatorily participate to curtail their loads. The problem lies in selection of appropriate customers to achieve certain energy curtailment targets. We tried to take a look at the problem fundamentally. We modelled the problem as an integer linear programming (ILP) problem. We then used industry standard solvers to solve the ILP problem. This always gave us an optimal solution. My mentor at USC was very supportive. He interacted with me on an almost day-to-day basis and guided me throughout the project. He made the entire process and research experience much easier.

In those two short months, I had one of my best times of my life when I did not only learn a lot of new things but also enjoyed a great deal and made some invaluable best friends. In those two months I learnt a lot of lessons. Some of them were technical, some were not but all of them were valuable. We did things we could only dream of. It was an invaluable experience!"

Kushal Salecha
Indian Institute of Technology
Gandhinagar

Prakhar Kumar
Birla Institute of Technology and Science (BITS) - Pilani

The two months spent at the University of Southern California have proved to be the most memorable of all! The internship has provided me myriad experiences which have helped me become a better student and person. Firstly, the academic environment at USC exposed me to the rigorous yet wonderful field of scientific research. The intense discussions which required us to think out of the box at times were extremely intellectually stimulating. Moreover, the internship allowed me to learn a subject of which I had no previous knowledge. This has helped me increase my breadth of information. My interactions with my guide helped me to understand the subtleties of scientific research and the manner in which it should be approached. I am extremely grateful to him for guiding me when I found myself stuck with a certain problem but at the same time letting me explore the subject myself. Finally, on a personal note, the internship allowed me to form a special bond with the finest minds of India. Many of them have become close personal friends and have helped me on several occasions during the internship. Moreover, I have also been exposed to the socio-cultural diversity of USA and learnt about the stark differences as well as underlying similarities of the cultures of USA and India. To sum it up, this was truly the most beautiful summer of my life and I am extremely grateful to my professor, my mentors, IUSSTF and USC without whom this would not have been possible.

Vikranth Reddy Dwaracherla
Indian Institute of Technology Bombay

Even now, I vividly remember the joy and excitement I felt when I heard from my friend that I was selected for Viterbi-India Program. This excitement persisted throughout the internship and USC always exceeded my expectations. Even before the start of the internship, while I was in IIT Bombay, my mentor at USC Prof. Jay Kuo, started interacting with me and gave me several helpful suggestions. I had an opportunity to work in the world-class research environment, meet many people who were interested in similar fields and make many good friends. This is all thanks to the Viterbi-India Program, IUSSTF and Viterbi School of engineering.

My research internship was on Computer Vision. Throughout the program, I experienced a tremendous amount of support from my professor and my Lab mates. During my internship, I first worked on Image Segmentation methods and came up with a segmentation method which uses contour cues to segment the images fast and accurately. Then, I continued to work on stereo vision and tried to come up with a new stereo vision algorithm using the developed segmentation algorithm to produce a disparity map. We proposed a method for producing disparity map using few reliable points which are characterized by peak distinctiveness, segmental propagation on these disparity values and then the plane-fitting algorithm to get the disparity map. Apart from this, I was able to attend summer classes on Computer Vision, various talks on emerging technologies which were organized within the lab.

I also had many opportunities to visit several places and enjoy with my friends. Finally, I would like to thank IUSSTF and Viterbi School of Engineering, USC for providing this wonderful opportunity and a memorable experien

For more information on the Viterbi-India Program:
Webpage: http://www.iusstf.org/story/53-51-Viterbi-India-Program.html
E-mail: viterbi-india@indousstf.org

Dr. Rajiv Kumar Tayal

Meet our new **Executive Director**

The Indo-U.S. Science and Technology Forum (IUSSTF) welcomes our new Executive Director **Dr. Rajiv Kumar Tayal**! Dr. Tayal has a Doctorate in Chemical Engineering and a Diploma in Project Management. He is a certified assessor as well as trainer for Laboratory Accreditation Systems. He is also a certified assessor for ISO – 9000 Quality Management Systems and ISO – 14000 Environment Management Systems. He has more than 34 years' experience in S&T related matters, while directly serving in Industry and Government and closely interfacing with a large number of academic institutions and research laboratories in India. He is also a fellow of the prestigious Indian National Academy of Engineering (INAE).

In the beginning of his career, Dr. Tayal worked in industrial R&D dealing with various facets of technology development and project implementation / management, in real time. He has extensive hands-on experience of working with various segments of R&D comprising of basic laboratory studies, translation of laboratory data to engineering data, process engineering, design, scale-up, techno – economic feasibilities and real life implementation. His deep understanding of individual entities in the R&D space provides him unique insight in visualizing interconnects and overall integration of R&D value chain from concept to commercialization. In addition to providing technical support to running plant production activities, he had been involved in the development of several processes / technologies for new products which were actually productionized in real life.

For the last twenty seven years, he had been working as an Advisor in the Department of Science & Technology (DST), Government of India, dealing with overall Science &Technology policy framework and several direct interventions through a vast range of schemes and programs related to promotion of scientific research and capacity building, particularly in the area of engineering sciences. For the last five years, he had been concurrently working for the Science & Engineering Research Board (SERB), a statuary

Dr. Rajiv Kumar Tayal

body created by an Act of the Indian Parliament under DST, and spearheading various R&D programs.

Over the years, he has presided over some of the best and most efficiently managed R&D programs in DST, receiving due acknowledgement and wide acclaim from the research community. He has effectively put into use his cross functional expertise and leadership skill sets in Research & Technology Development, Process & Systems Engineering, Project Management and Interpersonal Relations to realize the highest order of credibility and global benchmarks of excellence in all his programs.

He was instrumental in the successful establishment and implementation of International programs with leading U.S. Federal agencies. He has worked closely with the U.S. National Science Foundation (NSF) in the global program on *Partnership for International Research & Education (PIRE)* and with the U.S. National Institute of Health (NIH-NIBIB) in launching the *Indo-US Grand Challenge Initiative Program on Affordable Blood Pressure Measurement Technologies for Low Resource Settings in India and US.*

He also has extensive experience of working with Laboratory Accreditation Systems, Quality Management Systems and Environment Management Systems as an Assessor, Trainer and Consultant. He had been instrumental in creating

the basic foundation of the overall eco–system for Laboratory Accreditation System in India. He prepared several related documents and trained a large number of assessors and laboratory personnel to fulfill the requirement at both ends and create the basic structure for laboratory accreditation actively.

Dr. Tayal took over the position of the Executive Director of IUSSTF on 12th November, 2015. We at IUSSTF look forward to working under the new leadership and aspire to take the organization to even greater heights! IUSSTF wishes Dr. Tayal every success in his new assignment!

सत्यमेव जयते

Department of Science & Technology
Govt. of India

IUSSTF
Indo-US Science and Technology Forum

Building Energy Efficiency

Higher & Advanced Network (BHAVAN) Fellowships

Recognizing that climate change, clean and efficient energy and environmental protection are among the biggest challenges facing India and the United States; cooperation between our countries is critical in tackling these issues. In order to address the need for human resource development and capacity building in these frontier areas, the Department of Science and Technology, Govt. of India and the Indo-US Science and Technology Forum (IUSSTF) have partnered to launch the **Building Energy Efficiency Higher & Advanced Network (BHAVAN)** Fellowships with an aim to nurture contact between students and scientists of science and technology from India and the US.

Eligibility

For Student Internships

- Indian citizens currently pursuing a Ph.D. or M.Tech. in the field of Building Energy Efficiency or in engineering/science/technology/architecture with a major area of research related to Building Energy Efficiency at a recognized institution of higher education and learning in India.
- Age: Up to 32 years as on 29 February 2016.

For Fellowships

- Indian citizens having Ph.D./M.Tech./M.Arch. in Science, Engineering, Technology or Architecture in the specific area of Building Energy Efficiency. Relaxation in qualifications could be made for individuals with proven and considerable research background and experience who are part of a recognized institution of higher education and learning in India.
- Applicants must be pursuing independent research on extra-mural/industry-supported research projects and should have published in high-impact academic journals.
- Age: Upto 40 years as on 29 February 2016.
- Employment: The applicant should be affiliated to a public funded R&D Lab/S&T Institution (non-private)/ recognized Universities/Colleges in India.

The Program is envisaged to:

- provide opportunity to best and brightest Indian students and scientists to gain exposure and access to world class research facilities in US academia and labs;
- promote research and capacity building in the frontline area of Building Energy Efficiency;
- encourage and motivate outstanding students to take up research as a career path; and
- pave way for the next generation scientists and technologists from India to interact with American peers, thus helping to build long-term R&D linkages and collaborations.

Fellowship/Internship includes

- Monthly Stipend
- Contingency Allowance
- Return Airfare
- Health Insurance

Duration

- Internship: Minimum 3 months and upto 6 months
- Fellowships: Minimum 3 months and upto 12 months

Submission Deadline: 29 February 2016

For program information contact:
Dr. Nishritha Bopana
Indo-US Science and Technology Forum
Fulbright House, 12, Hailey Road, New Delhi - 110001, E-mail: energy.fellowship@indousstf.org

For Proposal Guidelines and Format please visit: **www.iusstf.org**

Bangalore Technology Expo & Innovator-Investor Meet

FICCI jointly with the Department of Science and Technology (Govt. of India); Lockheed Martin Corporation; Indo-US Science and Technology Forum; Stanford Graduate School of Business; IC2 Institute, University of Texas at Austin and TiE Silicon Valley organized a Technology Expo and an Innovator - Investor Meet on 15th October 2015 in Bangalore.

The **India Innovation Growth Programe** is a unique initiative to support Indian innovators commercialize their technologies both in India and the global marketplace. The endeavour through this programe is to identify innovations with commercial potential and transform laboratory knowledge into commercial products, services and processes. The programe has been running successfully for the past nine years and has been very well received both by the scientific community and the industry.

Each application received under the program is thoroughly studied for its technical and commercial viability by a team of experts from FICCI to select the top 50 innovations. The selected innovators are provided an intensive entrepreneurship and technology commercialization training by experts from the Stanford Graduate School of Business. So far, over 400 innovators have been provided this training. Subsequently, these 50 innovators pitch their ideas to an esteemed jury panel. Finally, top 30 innovators get awarded and receive business development support from FICCI and the IC2 institute for successful commercialization of their ideas in the global marketplace. Ten of these innovators are taken to the Silicon Valley for a week to provide them global exposure on best practices on innovation, incubation and technology commercialization. Twenty innovators are given a cash award of Rs. 1 lakh each.

During the Bangalore Expo and Investor Meet, around 50 commercialization deals were announced for the winners with leading industry partners. Awarded Innovations under the Program were also showcased.

For more information about the program, please visit http://www.indiainnovates.in/

Women in Science

"Women in Science" is one of the priority areas for engagement between the United States and India. Both countries share a common goal of promoting, enabling and retaining women in science, and increasing access to science and technology for women. The Governments of India and USA are committed to collaborate on issues of leadership, mentoring, and networking of women scientists in both countries.

Over the years, the Indo-US Science and Technology Forum (IUSSTF) has been actively engaged in promoting Women in Science. Since 2009, IUSSTF partnered with the U.S. Embassy and the Department of Science and Technology (DST), Government of India to organize four annual workshops and several roundtables on women in science.

As a part of the continued efforts to promote Women in Science, the Indo-US Science and Technology Forum (IUSSTF) in partnership with the Department of Science and Technology, Government of India and COACh International organized the **Training Program in Leadership and Career Advancement for Indian women scientists and engineers.** Two Training Programs were successfully organized on 29 August- 31 August 2015 Pune and September 2-4, 2015, Guwahati.

Prof. Geraldine Richmond, Founder and Chair of COACh International, President, American Association for the Advancement of Science, Presidential Chair and Professor, Department of Chemistry and Biochemistry, University of Oregon, USA and her team organized these training programs. The program was hosted by the Indian **Institute of Science Education and Research (IISER)**, Pune and the **Indian Institute of Entrepreneurship (IIE),** Guwahati.

For each of these training programs the participants were drawn from the mid career Indian women scientists and trainers. Last year similar training program was organized in New Delhi and Bangalore, September 2014. Over 200 Indian women scientists across universities and R & D institutions were trained during these four training programs.

The women scientists were trained on topics such as effective negotiation skills, successful leadership methods, communicating science effectively, working in a team environment, consensus building, establishing a strong in-person and internet presence, publishing in respected journals, grant writing, and

the job search. Special session on various funding opportunities, intellectual property rights, innovation and entrepreneurship and sexual harassment was conducted. The training program provided the participants an opportunity for interacting with successful women scientists, engineers and entrepreneurs. Such an exposure motivated the participants to draw inspiration and aspire to undertake challenging assignments towards a professionally enriching experience and attaining leadership roles.

Dr. Soumya Swaminathan, Director General, Indian Council of Medical Research (ICMR), Secretary, Department of Health **Research**, **Government of India and** Prof. K.N. Ganesh, Director, IISER Pune shared their perspectives at the Inaugural Session held on 29 September at IISER Pune. Mr. George N. Sibley, Minister-Counselor for Economic, Environment, Science & Technology Affairs, U.S. Embassy New Delhi interacted with the participating women scientists and shared his views at the Concluding Session.

Ambassador Richard Rahul Verma, Ambassador, US Embassy, Dr. Asha Kishore, Director, Sree Chitra Tirunal Institute for Medical Sciences & Technology, Trivandrum, Thiruvananthapuram and Mr. Vinod K Pipersenia, IAS, Chief Secretary, Government of Assam shared their valuable perspectives at the Inaugural session held on 2 September at Indian Institute of Entrepreneurship, Guwahati. Several highly accomplished and eminent Indian women scientists and technologists participated in the various Panel discussions organized during these training programs.

Session I
Career Launch and Acceleration

This session provided techniques necessary for an effective career launch in STEM fields. Discussion, role-playing and group problem solving are important components of the session. The session included identifying participants' strengths and interests, common mistakes of graduate students/faculty/researchers and ways to avoid them, effective in-person and cyber interviews, effective communication methods for research and teaching presentations, building a strong CV and developing a strong internet presence.

Session II : The Art of Effective Negotiation

This session taught the fundamentals of negotiation relevant to a variety of one-on-one conversations and group settings. Topics included the importance of

negotiation to advance research and career objectives, identification of negotiables including start-up packages, space, authorship, supplies, etc., necessary elements of a successful negotiation, the importance of developing alternatives to an agreement, techniques for handling difficult people and conversations, the importance of listening and appreciating different viewpoints and identification of short and long-term negotiation goals.

Session III :
Publishing Research in Peer Reviewed Journals

This session provided advice and training on publishing scientific and technical results in peer-reviewed English language journals. Topics included publication and review process for many journals, organizing a paper, determining when and where to publish results, identifying data to include in the publication and organizing the material, and working with editors and on-line submissions and responding to reviews.

Session IV
Persuasive Scientific Presentations

This session provided training on how to present research results in a manner that maximizes the ability of the audience to understand why the work was conducted, the methods used, the results obtained and impact of the research on the field. The content of the session was based on research that has examined factors that maximize audience retention of information by making a clear, concise and compelling oral/visual presentation.

Session V : Leadership and Networking Skills for Women in Science and Technology

The session included presentations by the facilitator, small group discussion and experiential learning. This session was designed to give participants the basic concepts of leadership, describe recent research on leadership qualities that lead to success and failure, discuss effective leadership styles for women in different cultures, conduct a self-assessment to identify areas for skills enhancement, provide techniques and strategies for career advancement into leadership roles, assist in developing and maintaining strong leadership networks.

Session VI : Mentoring for Success

This session included an assessment of participants interest in mentoring activities, an assessment of previous mentors, responsibilities of the mentor and mentees, and skills identification for increasing the quality of interactions between mentor and mentee including effective listening and communication methods. This session included an assessment of participants' interest in mentoring activities, an assessment of previous mentors, responsibilities of the mentor and mentees, and skills

identification for increasing the quality of interactions between mentor and mentee including effective listening and communication methods.

Session VII
Proposal Writing and Grantsmanship

This session module provided training in effective techniques for writing proposals to gain research support for a scientific or engineering project. Topics included identifying the priorities of the agency or program solicitation, determining criteria for assessment and writing to the criteria, developing a format for the proposal following known guidelines, identifying the objectives of the research project, developing a budget and cost assessment, interacting with program officers and agencies, and developing research partnerships.

Women Entrepreneur Quest

December 4, 2015

The Indo-US Science and Technology Forum (IUSSTF) once again partnered with the Anita Borg Institute India (ABI India) and the National Science & Technology Entrepreneurship Development Board (NSTEDB), Department of Science and Technology (DST), Government of India to jointly organize Women Entrepreneur Quest WEQ 2015 to strengthen the entrepreneurial ecosystem and support for women entrepreneurs with technology startups in India.

Women Entrepreneur Quest (WEQ) 2015 is a unique business plan contest for women led startups in technology across India. The program also complements the policy's focus on skills development and growth of the entrepreneurship ecosystem in India. It is a comprehensive platform that rewards talented women entrepreneurs with technical ventures and provide mentoring, learning and networking opportunities for their future business growth. This innovative technology business plan competition is designed to promote innovation and ensure support to aspiring women entrepreneurs at a worldwide level.

Top 6 women entrepreneurs from WEQ 2015 were awarded in Bangalore on December 4, 2015:

- **Arpita Gopal**, Founder and Director – Juno Software Systems
- **Madhu Jalan**, CEO – Topycs
- **Sonali Tripathy**, Chief Business Officer – Women's Health – Embryyo Technologies
- **Suman Kapur**, Founder, Promoter and Scientific Advisor xBITS – Xcellence in Bio Innovations and Technologies
- **Vibha Tripathi**, Managing Director - Swajal Water Pvt. Ltd.
- **Vidhya Sundaram**, Head of Engineering - Channelyst Advisory Services Pvt. Ltd. Vidhya Sundaram has also received a cash award of Rupees 5 lakhs.

The six women entrepreneurs will receive an all-expense paid experiential learning visit to Silicon Valley, US early next year. During this visit, the women entrepreneurs will be provided with an extensive mentoring and networking opportunities with VCs, women-led start-ups, trade associations, business universities and larger high-tech organizations. They will also be given an insight into ways to access and raise capital, which is one of the biggest challenges for women entrepreneurs. ●

Improving Life Quality

Nishith Chasmawala
Co-Founder and CEO
Consure Medical

Fecal incontinence (FI) is a condition that affects nearly 100 million bedridden patients worldwide across ICUs (17%-58%), long-term care facilities (20-46%), nursing homes (17-50%), and at home (2-8%). Outside the hospital, large geriatric populations in residential or nursing facilities also suffer from fecal incontinence. Furthermore, about 50% of the psychiatric ward patients have FI due to long-term neurological diseases. As global population dynamics are swaying towards aged societies, like those in the U.S., Japan, and Germany, the prevalence and complications associated with FI will continue to compound.

Absorbent pads largely drive the global market for fecal management solutions. A smaller segment includes fecal drainage catheters that have been reversed engineered rather than designed for the clinical need. Through rigorous clinical immersion, Consure Medical, which was founded in 2012, has developed a novel technology that addresses the clinical and economic implications of fecal incontinence by expanding indications for use, reducing skill level required to use a device, and introducing a new level of care for patients outside the ICU – characteristics unfeasible with competitive products.

After nearly two years of intense development, Consure has developed the QoraTM Stool Management Kit, the world's first FDA 510(k) cleared indwelling fecal drainage device for the management of fecal incontinence that can be used across a continuum of care facilities from ICUs to nursing homes. In select markets like India, caretakers of bedridden patients at home can use the device. QoraTM is the only stool management device that integrates a hygienic applicator to deploy a diverter inside the rectum by a minimally trained care provider or a motivated family member. The indwelling diverter resides between the rectal valves without distending the rectum beyond its natural state and without interfering in its natural physiological function. Uniquely designed to eliminate pain and discomfort, QoraTM is the sole fecal drainage device that can be used on patients with or without rectal tone and is suitable for rectal exudate that improves from liquid to semi-formed consistencies.

With key partnerships and financial support from organizations like the Indo-US Science and Technology Endowment Fund, Consure has been able to leverage global expertise to help bring its products to the market. The IUSSTF grant enabled Consure to complete early product development and successfully attain regulatory and intellectual property across several markets. By partnering with global design experts at LUNAR Design, Consure was able to refine early concepts towards a more manufacturable and scalable design that is now in high volume production. The intellectual property for the company's core QoraTM technology has been granted in key markets, including US, EU, Canada, Singapore, Australia, and Japan. As a result of its elegant and versatile design, the QoraTM technology has the potential to expand globally and benefit more than 100 million fecal incontinent patients each year.

Consure Medical is striving to become a market leader in a $5 billion fecal incontinence market with the unique distinction of being one of the few emerging market medical device companies to have both US FDA clearance and granted patents in all key markets including USPTO. The company has completed the development of three product extensions and has successfully completed all safety, efficacy, and target patient studies in India and USA. These products have been cleared by US FDA for market launch and are currently being used by select hospitals in India and USA. Consure has established a scalable manufacturing facility in partnership with an ISO 13485 and FDA/CE Certified contract manufacturer in Europe. The facility provides both development and business

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Because every drop counts

Water is a vital necessity for food, ecosystems and life. Because of its global importance, the **Robert B. Daugherty Water for Food Institute** (WFI) and the **University of Nebraska-Lincoln** (UNL) have partnered with the **Department of Science and Technology** (DST) of the Government of India and the **Indo-US Science and Technology Forum** (IUSSTF) to advance collaborative water sciences research between PhD students and post-doc researchers from India and the United States. The **Water Advanced Research and Innovation (WARI) Fellowship Program** is a dynamic and transformative mentorship program for individuals who want to pursue advanced academic research and water-related careers.

"We are delighted to partner with our colleagues in India to develop this learning exchange," said UNL Chancellor Harvey Perlman. "With UNL's strong history in water science, the participants will gain the knowledge and experience they need to tackle the enormous challenges surrounding water sustainability. And, we look forward to the advanced education our students will gain when they travel to India for the program."

Secretary-DST, Ashutosh Sharma said "Nurturing capabilities to develop and apply scientific tools and methodologies are critical to address prevalent and emerging water challenges in India. WARI Fellowships, a first of a kind Indo-US Capacity Building Program in the area of water research is an initial step to leverage expertise and facilities of University of Nebraska-Lincoln for exposing best and brightest Indian research professionals to world class research."

Roberto Lenton, Founding Executive Director of the Water for Food Institute added, "This is an outstanding opportunity to connect Indian students and researchers with the leadership

and staff at the Water for Food Institute and the expert faculty at the University of Nebraska-Lincoln."

Former Executive Director of IUSSTF, Rajiv Sharma said, "Water has emerged as an important area for collaboration between India and US. The WARI fellowships will not only help in capacity development in India but also forge new linkages between Indian and US researchers to pursue joint research in this area which has huge societal impact."

Program discussions about this partnership began with conversations in 2012 between UNL's Vice Chancellor for Research Prem Paul and Vice Provost Tom Farrell, and Secretary Ramasami of the Department of Science and Technology. With the WARI initiative the Government of India seeks to provide opportunities for high performing Indian graduate students and scientists to gain exposure and access to world-class research facilities; promote research and capacity building in the area of water; encourage and motivate outstanding individuals to take up research as a career path; and, pave the way for the next generation of scientists and technologists from India and the United States to interact with each other, fostering long-term R&D linkages and collaborations. The Department of Science and Technology of India is sponsoring the program for five Ph.D. student interns and five post-doctoral fellows each year for three years. UNL and WFI are providing supplementary support for participants, as well as advising on candidate selection. The leadership at UNL and the University of Nebraska are working to identify funding for UNL students and scientists to have a reciprocal experience in India.

The first year WARI interns and fellows will pursue advanced research in the following areas:

- Ecological and human health impacts of pollutants and emerging contaminants
- Groundwater quality assessment and management
- Health impacts of water quality
- Laboratory methods to support water-related research
- Methodologies to help remediate current and future contamination threats
- Methods for measuring water quality
- Non-point source pollution and rural drinking water quality
- Remote sensing applications for monitoring water quantity and quality
- Understanding and protecting water quality
- Wastewater quality and management
- Water pollution
- Water supply and sanitation

The program officially launched with a reception at the Cosmos Club in Washington, D.C. on September 22, 2015, hosted by UNL Chancellor Harvey Perlman and attended by leaders of the four collaborating institutions and a range of partner organizations.

A joint WARI selection committee has recently reviewed applications and has selected the first group of participants. These participants will begin their internships and fellowships at UNL in March 2016.

For more information, please visit http://www.iusstf.org/story/53-88-Water-Advanced-Research-and-Innovation-Fellowship-Program.html and http://waterforfood.nebraska.edu/blog/2015/10/08/new-partnership-will-educate-advance-research-of-next-generation-of-indian-water-scientists-in-nebraska/

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Department of Biotechnology
Govt. of India

IUSSTF
Indo-US Science and Technology Forum

BIOENERGY AWARDS
for Cutting Edge Research (B-ACER)

Recognizing that clean and efficient energy, environmental protection and energy security are among the biggest challenges facing India and the United States; the Department of Biotechnology, Government of India and the Indo-U.S. Science and Technology Forum are committed to tackling these issues by building capacity in these frontier areas. To nurture future innovators and thought leaders in Biofuel and Bioenergy, we are happy to announce the **Bioenergy-Awards for Cutting Edge Research (B-ACER)** - a dynamic and transformative program developed to nurture contacts between students and scientists from India and the United States.

THE PROGRAM IS ENVISAGED TO

- Provide an opportunity to the best and brightest Indian students and scientists to gain exposure and access to world class research facilities in leading U.S. institutions;
- Promote research and capacity building in the frontline area of Biofuels and Bioenergy;
- encourage and motivate outstanding students to take up research as a career path; and
- Pave the way for the next generation scientists and technologists from India to interact with American peers, thus helping to build long-term R&D linkages and collaborations.

PRIORITY AREAS

- Systems & Synthetic Biology (to produce biofuel molecules)
- Feed stock improvement (microalgae, macro algae, cellulosic biomass, tree born oil)
- Production Technology (cost-effective technology for bio-ethanol, algal biofuel, bio-butanol, bio-hydrogen, fuel cells, bio-refinery)

ELIGIBILITY

For Student Internships

- Indian citizen currently pursuing a Ph.D. on a full-time basis in the field of Biofuel related area in public-funded R&D lab/S&T institution (non-private) / recognized academic institute / university / college in India.
- Age: Upto 32 years as on 29 February 2016.

For Fellowships

- Indian citizen with a Ph. D. in Life Science, Biotechnology, Engineering or Technology holding a permanent Position in public funded R & D lab/ S & T institution (non - private) /recognized universities/ colleges in India
- Applicants must provide proof of independent research work in internationally recognized academic journals.
- Open only to applicants working in the field of Biofuel
- Age: Upto 45 years as on 29 February 2016.

PLACE OF WORK

The applicant should have a letter of acceptance from a reputed U.S. scientific / technological institution / laboratory where he / she would undertake the research work under the Fellowship/Internship.

FELLOWSHIP/INTERNSHIP INCLUDES

- Monthly Stipend
- Air-fare
- Contingency allowance

DURATION

- Internship: Minimum 3 months and upto 6 months
- Fellowship: Minimum 3 months and upto 12 months

For program information contact:

Dr. Sangita Kasture
Department of Biotechnology, Govt. of India
New Delhi

Dr. Nishritha Bopana
Indo-US Science and Technology Forum
New Delhi

For program details visit www.iusstf.org or write to energy.fellowship@indousstf.org

Submission Deadline: 31 January 2016

U.S.-India Entrepreneurs Roundtable

December 8, 2015

The "**U.S.-India Entrepreneurs Roundtable**" was organized by the ***Embassy of the United States of America*** and ***the Indo-U.S. Science & Technology Forum*** (IUSSTF) on December 8, 2015 at 91 Springboard, Gurgaon, Haryana. The event was graced with the presence of Deputy Secretary of State, Antony J. Blinken and Deputy Chief of Mission, US Embassy-Michael P. Pelletier.

Mr. Blinken interacted with the following six award-winning Indian entrepreneurs of the U.S.-India Science & Technology Endowment Fund:

- Pooja Mukul, Bhagwan Mahaveer Viklang Sahayata Samiti (BMVSS), Jaipur-*Affordable and user-centric knee joints Affordable and user-centric knee joints to remobilize above-knee amputees in India and globally*
- Anup Karwa, SFPL Crop Life Sciences Private Limited, Jalna- *Developing novel biological seed treatments to confer abiotic stress tolerance in crops*
- Amit Sharma, Consure Medical Private Limited, New Delhi- *A novel device to manage fecal incontinence in non-ambulatory patients*
- Avijit Bansal, Windmill Health Technologies, New Delhi-*Easy to use, integrated neonatal resuscitation solution*
- Tanmaye Seth, Aquagri Processing Pvt. Ltd., New Delhi-*Commercialization of cultivated sea plants based organic bio-stimulants for applications in the USA*
- Abhinav Sinha, EKO India Financial Services Private Limited, New Delhi-*Branchless banking and financial services for the unbanked and under-banked*

Each entrepreneur briefed Deputy Secretary Blinken about their innovative product and technologies, its impact on society, how the U.S.-India Science & Technology Endowment Fund has supported them in their entrepreneurial ventures. Mr. Blinken took deep interest in engaging with each entrepreneur and learning about their inspiration, success, challenges and fund raising. He also discussed about regulatory compliances and government policies. The broad discussion included the value of collaborations with US, and other possible bilateral engagements to enhance the entrepreneurial ecosystem.

Deputy Secretary Blinken was very appreciative of the efforts and the awesome innovations made by the Endowment Awardees and stated ***"It's so impressive to see what you are doing is impacting billions of lives."*** ●

REALIZING THE POTENTIAL OF RARE DISORDERS: AWARENESS, RESEARCH AND DRUG DEVELOPMENT IN INDIA

07-09 September 2015
New Delhi, INDIA

Rare disorders are defined as those having a frequency of less than 1 in 5000 people. Although individually rare, collectively they affect about 70-80 million people in India. Currently these disorders are ignored by both the health as well as the Pharma sector, making the patients helpless and vulnerable, without any proper facilities for diagnosis and management in India. The United States on the other hand has a well-organized Office of Rare Disorders under the National Institutes of Health, Bethesda. This coordinates and provides a number of facilities for the people. These consist of, among others, creating awareness, diagnosis of those whose disease remained undiagnosed by conventional testing, registries, bio-repositories, clinical care networks as well as translational research program. An orphan drug Act exists that encourages and provides incentives to Pharma companies to develop new therapies. This workshop on ***Realizing the potential of rare disorders: awareness, research and drug development in India*** organized by **I.C. Verma** (Sir Ganga Ram Hospital, New Delhi), **Ratna Dua Puri** (Sir Ganga Ram Hospital, New Delhi), **Rashmi Gopal-Srivastava** (National Institutes of Health, Bethesda) **and Stephen Groft** (National Center for Advancing Translational Sciences, Bethesda) brought together US scientists and administrators with their counterparts in India so that a program for rare disorders can be developed in India, that will create awareness, improve infrastructure for diagnosis and research, reduce prohibitive costs for diagnostic tests and therapies, improve regulations to encourage research and drug development.●

ADVANCES IN THE SEISMOLOGY OF THE SUN AND STARS

07-11 December
Mumbai, INDIA

The seismology of the Sun and stars provides very important constraints on their structure and dynamics. The Sun's magnetic cycle modulates our climate and affects the functioning of space instrumentation, and on unusual occasions, can even affect electrical systems on Earth. It is therefore practically relevant to appreciate the governing mechanisms of solar magnetism. Studying the stars in our galaxy provides fundamental

insights into the position of the Sun and solar system. Do we live in a privileged environment or is the Sun a typical (Sun-like) star? How many stars have planetary systems? Kepler has revolutionized our understanding in this regard, with the discovery of planetary systems around a number of stars. Thus the appreciation and accurate interpretation of these observations will have important practical and scientific consequences. This Indo-US workshop titled ***Advances in the seismology of the sun and stars*** organized by **Shravan Hanasoge** (Tata Institute of Fundamental Research, Mumbai) and **Michael Thompson** (National Center for Atmospheric Research, Boulder) was aimed at discussing advances in the seismology of the Sun and stars. The extraordinary observations of the Sun and stars being taken by the Kepler and Solar-Dynamics-Observatory space missions make this an exciting time for this field. This workshop explored methods to substantially improve the understanding of these data and scientific output.

Healthcare Innovation

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synergies with Consure, blending expertise in medical device contract manufacturing, commercial operations, and quality management.

By accomplishing key milestones of clinical validation, regulatory clearance, scalable manufacturing, and intellectual property protection across global markets, Consure can focus on commercial aspects and pipeline development. Furthermore, in continuing with its innovative heart, the company has four additional products at various stages of development. Consure Medical is trailblazing a unique innovation strategy to build a critical care portfolio of novel devices that would serve the unmet clinical needs of emerging markets like India and help alleviate the health economic burden in markets like US and Japan. Consure's brand is the way we do business – how we constantly push the boundaries of healthcare innovation, how we interact with patients, family members, care providers, and the way we treat our customers and employees. Our brand combines empathy, elegant engineering, and efficacious technology into our products to better serve patients worldwide.

IUSSTF
Indo-US S&T Forum

Indo-US Science & Technology Forum

Who we are

The Indo-US Science and Technology Forum (IUSSTF), established under an agreement between the Governments of India and the United States of America, is an autonomous, not for profit society in India, co-funded and co governed by both the governments. IUSSTF promotes and catalyzes Indo-US collaborations in science, technology, engineering, biomedical research and innovation through substantive interaction among government, academia and industry.

What we do

Foster excellence by capitalizing on the scientific and technological synergy
Disseminate information and create awareness through scientific exchanges
Build linkages through networking between academia and industry
Explore new frontiers by nurturing contact between young and mid-career scientists
Pave way to sustainable interactions and establish long term relationships
Encourage public-private partnership to inculcate elements of innovation and entrepreneurship

We support

Exciting and innovative collaborative programs cutting across disciplines and institutions

- Academia-Industry Connect Programs
- Advance Schools & Training Programs
- Bilateral Workshops & Symposia
- Flagship Events
- Knowledge R&D Networked Joint Centers
- Programs on Innovation and Entrepreneurship
- Public-Private Networked R&D Joint Centres
- Research Fellowships for Faculty
- Special Initiatives for Strategic Partnerships
- Student Internships & Visiting Professorships

We invite

Proposals which are peer reviewed both in India and USA for awards

Bilateral Indo-US Workshop/Symposia & Indo-US Training/Advanced Schools

Submission Deadlines	Award Announcements
01 March	31 July
31 August	31 January

Indo-US Public-Private Networked Centres & Indo-US Knowledge R&D Networked Centres

Submission Deadline	Award Announcement
31 August	31 January

How to contact us?

For program details visit:
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