



# संकल्प

## Newsletter

For private circulation only

### CSIR - IIP

Year 2017 | January-March | No. 54

An in-house bulletin of  
CSIR - INDIAN INSTITUTE OF PETROLEUM, Dehradun

### ! WELCOME TO A NEW YEAR !

#### 4<sup>TH</sup> 3R INTERNATIONAL SCIENTIFIC CONFERENCE ON MATERIAL CYCLES AND WASTE MANAGEMENT (3RINCs), MARCH 8-10, 2017

The 4<sup>th</sup> 3R International Scientific Conference on Material Cycles and Waste Management organized by the Council of Scientific and Industrial Research (CSIR), the CSIR-Indian Institute of Petroleum, the CSIR-Central Building Research Institute, Roorkee, the Japan society of Material Cycles and Waste Management, the Korean Society of Waste Management, the Indian Institute of Technology Delhi, and the International Society of Waste Management, Air & Water, was held at the India Habitat Centre, New Delhi from March 8-10, 2017. Over 300 delegates, speakers and participants from 12 countries attended the conference. Exhibitors from different industries displayed their company profiles, products, services and technologies. The conference comprised of several technical sessions on various 3R issues. The Indian Union Cabinet Ministers, Dr Harsh Vardhan, Minister of Science and Technology, Mr Ananth Kumar, Minister of Chemicals and Fertilizers, and Mr Suresh Prabhu, Union Railways Minister, graced the conference with their presence. They also emphasized on the necessity of 3R for the control and reuse of various wastes in India.



**Dr Harsh Vardhan, Hon'ble  
Minister of Science and  
Technology & Earth Sciences**

Dr Harsh Vardhan, Minister of Science and Technology, Govt. of India, inaugurated the event and he mentioned that India has been a key player in promoting the efficient waste management system in the world. "Now we need a directional change and positive approach for making a bigger impact", he said. He also mentioned that the Prime Minister Mr Narendra Modi has played a key role on the international platform to develop a sense of waste management and material cycles.

In the ministerial session after the inaugural, Mr Ananth Kumar, Minister of Chemicals and Fertilisers, Govt. of India, mentioned that hazardous waste generated by pharmaceutical and medical devices, industry and plastic waste posed major environmental problems in India. Mr Kumar suggested, "Reduce, Recycle and Reuse (3Rs) should be

### A word from the Director...

The New Year, 2017, ushered in a quarter of exciting events for CSIR-IIP as well as for the energy and sustainability sectors generally. Starting with the APCAT-7 conference on catalysis in January at Mumbai to the 3RINCs conference on Material Cycles and Waste Management in March at New Delhi, the opportunity to exchange ideas with a galaxy of international luminaries and national thought leaders enriched us across a spectrum of emerging knowledge areas.



The 12<sup>th</sup> Five Year Plan projects, which had provided a platform for exploration and crystallization of ideas across the refining, petrochemicals and carbon management value chains, drew to a close this quarter. Sectoral Monitoring Committee Reviews for the 12FYP Projects were largely appreciative of the good work done across CSIR Labs. A special mention is warranted of the GENLUBE project, anchored by the Tribology Division at CSIR-IIP, which was rated Outstanding.

R&D activities in the Fast-Track Translation (FTT) Projects in areas of Bio-gas quality up-gradation, adsorptive desulphurization of diesel, conversion of waste plastics to fuels and production of bio-jet fuel from non-edible oils gathered momentum. A number of MOUs were signed to strengthen relationships between stakeholders from industry and government. Notable among these are :

- (1) An MoU with the Chhattisgarh Bio-fuel Development Authority for creation of jobs while building a secure supply chain of feedstocks for bio-jet fuel.
- (2) One with the ONGC Energy Centre Trust, New Delhi, on hydrogen generation through a partially open-loop S-I process involving H<sub>2</sub>S incineration.
- (3) One on academic collaboration with IIT Delhi.
- (4) An MoU with the Institute of Bio-resources and Sustainable Development (IBSD), Imphal, Manipur on 'Loktak lake bio-mass (para-grass) based bio-refinery for fuels and chemicals.'

A sponsored project from M/s Cairn India Limited, Gurgaon on CS<sub>2</sub> assessment in straight-run naphtha was the highlight of the new industrial associations during the period.

Perhaps the most important occasion during this quarter was the National Safety Week. At the CSIR-IIP, we work daily with materials and processes that carry short-term risks of toxic exposure, fire, explosion, etc., and long-term hazard potential for cancer, respiratory diseases, skin afflictions, adverse environmental impact and so on. It is essential that we adopt the best practices in our workplaces, and in the workplaces of our client and partner organizations, to set an example for attention to detail in matters of health, safety and environment while delivering world-benchmarked results in translational research and technology development.

That said, it is a privilege to share this latest edition of the CSIR-IIP Newsletter with you.

Warm regards and best wishes.

• Dr Anjan Ray



**Mr Ananth Kumar, MoCF**

annually. He announced that his Ministry is ready to ink an MoU with the CSIR for setting up a task force for promoting 3Rs. He appealed to use "2R (Reuse, Recycle)" material instead of "waste material".



**Mr Suresh Prabhu, MoR**

for waste management," he said.



**Dr Girish Sahni, DG, CSIR**

management as a key component of a sustainable future for planet earth, and more specifically in progress towards a robust Material-Cycle Society that aims to preserve resources."



**Dr Anjan Ray, Director, CSIR-IIP**

a part of the curricula in the syllabi of schools at primary and secondary levels". He also pointed out that about 4,500 urban areas in the country generate 55 million tonnes of waste every year out of which only one million tonne is converted into compost while it ideally should be 5.5 million tonnes

Mr Suresh Prabhu, Minister of Railways, Govt. of India, spoke about the challenges to be dealt with the waste to use as the next value chain. He emphasized upon the control and reuse of toxic and industrial waste. He mentioned that this is the time to link culture with science. "We should term the agri-waste as a key resource

Dr Girish Sahni, Director-General, CSIR, said that CSIR has a major focus on developing the technology for creating wealth from waste. It is endeavouring to make the technology developed energy-efficient and affordable. Dr. Anjan Ray, Director, CSIR-Indian Institute of Petroleum and Chairman, 4<sup>th</sup> 3RINCs, said, "3RINCs is an opportunity for all stake-holders interested in the broad area of waste

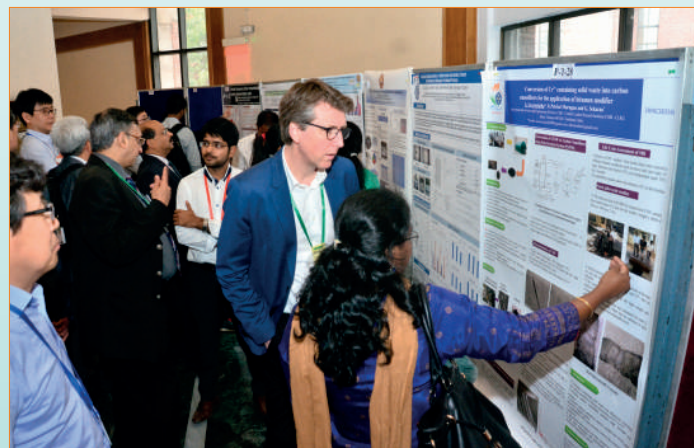
The Scientific session included plenary lectures, in which four speakers were invited. On March 8, Dr Jennifer Holmgren, Chief Executive Officer, CEO, Lanza Tech, USA, gave a speech



**Delegates releasing the Souvenir**

entitled "From Waste to Products-Innovating a Carbon-Smart Future". She discussed carbon capture and fixation. She said that much of the global warming issues can be solved by carbon recycling. Dr Somrat Kerdsuwan, Professor, King Mongkut's University of Technology, Thailand, spoke on waste management in Thailand. His presentation focussed on various challenges in municipal waste handling, government policies, their implementation and future perspectives. On March 9, Dr Masaki Takaoka, Professor, Kyoto University, Japan, gave a speech entitled "The Role of Waste-to-Energy and Its Situation in Japan". He discussed the current status of waste production and emission of dioxins from their incomplete combustion in Japan. He urged the encouragement of technological developments in the field of Waste-to-Energy. On March 10, Dr Suneel Pandey, Director, Environment & Waste Management Division, TERI, delivered a speech on "Green Growth & Resource Efficiency in the Context of Waste Management". He addressed some of the key challenges before solid waste management in India. He also highlighted that proper waste management can reduce the GHG emissions, and resource recovery saves natural resources, provides decent livelihood and reduces poverty.

The Special Sessions were organized by the 3 RINCs organizers for various 3R-related topics. The topics of four special sessions were "Mega City & Material Cycles", "Resource Recovery from Industrial By-products" and "Waste for Climate Change", "Bio-mass Gasification" and "Status of 3R in Asia and the Pacific Region".



**Delegates at the Poster-session**



In the General Sessions, there were 17 oral presentation sessions and 2 poster presentation sessions. There were a total of 117 presentations, including 61 oral (including special sessions) and 56 poster presentations. Oral sessions consisted of the following topics organized parallelly at three different venues: "Solid Refuse Fuel (SRF) Use and Waste-to-Energy", "Metal Resource Recovery", "3R Case Study", "Disaster Waste and Hazardous Waste", "Industrial Waste and Recycling Technology", "Thermal Decomposition and Treatment", "Bio-mass Utilization", "E-Waste", "Adsorbent Development, Landfill and Soil Pollution", "3R Policy", "MFA and LCA" and "Food Waste". All of the sessions successfully promoted a deeper understanding of, and fruitful discussions on, each topic. Posters were displayed during the two sessions on March 9 and 10, 2017.

At the Closing Ceremony on March 10, 2017, Prof S Sakai briefly summarized the conference and invited all to contribute to the forthcoming Journal and to the 5<sup>th</sup> 3RINCs as well. Dr Asari and Dr Ishigaki announced the awards. Dr D K Tuli gave the closing summary. On behalf of the organizers, Dr Thallada Bhaskar, Organizing Chairman, expressed his sincere appreciation and thanks to all the plenary lecturers, participants, supporters, staff, and other contributors.

**OIL & GAS CONSERVATION AWARENESS DRIVE – 'सक्षम' (संरक्षण क्षमता महोत्सव) (16<sup>TH</sup> JANUARY – 15<sup>TH</sup> FEBRUARY, 2017)**



**Mr Anand Bardhan**

Mr Anand Bardhan, Principal Secretary, Food & Civil Supplies, Govt. of Uttarakhand, inaugurated the "Oil & Gas Conservation Awareness Drive– 'सक्षम' (संरक्षण क्षमता महोत्सव)–2017 (16<sup>th</sup> January – 15<sup>th</sup> February, 2017) at the Institute and said that the organization of this drive is quite appropriate at the CSIR-IIP as the Institute is engaged in the field of oil or petroleum, e.g. recycling of oil etc. As the consumption of oil or energy is

commensurate with progress, the need to preserve it in our daily lives is evident, as we import 80% of oil. Saving on oil saves foreign exchange and pollution can also be reduced. This is our

international commitment on account of global accords on the issue. Conservation is a community effort and individual efforts are also important. We will have to keep in mind climate change and other adverse effects also. The Chief Guest, calling the presence of school children in the programme as timely, said that it should be ingrained in the young minds. For achieving this, Mr Bardhan suggested that the literature published by the organizers, viz. the Petroleum Conservation Research Association, should be distributed amongst all school-children. Besides this, the drivers should be imparted training and the petroleum dealers, petrol pumps etc. should be made aware of the need to save energy. The Chief Guest underlined the fact that the conservation of oil and gas is not just a message, but the need of the hour.

The programme began with the lighting of the traditional lamp, the National Anthem and Saraswati Vandana, presented by the school-children of the Kendriya Vidyalaya, CSIR-IIP. After this, Mr Nagendra Singh, State-Level Co-ordinator, Oil Industries (Uttarakhand) welcomed all and gave an outline of the month-long activities and informed that these activities will be held in two parts, spreading awareness among all petrol-pumps, Kisan Seva Kendras and the rural women.

Mr S K Sinha, Senior Regional Manager, IOCL, gave energy-saving tips in detail and said that the participation of children in Oil & Gas Conservation Awareness Drive is a necessity. As increase in the consumption of energy goes hand-in-hand with human development, reducing its use is the only way out. We should include energy conservation in our daily routine.



**Dr Anjan Ray**

Dr Anjan Ray, Director, CSIR-IIP, welcomed the Chief Guest and introduced him. Citing his personal life experiences, he remarked how important the saving of oil is as the use of fuel generates CO<sub>2</sub>, adds to global warming, agriculture is impacted and even land-use gets affected. Conservation of oil & gas is necessary for us not only to save on import bill, but also to protect our future. He called upon all to reduce their want for fuel, for then

only can its price, use & ill-effects be checked.

The Chief Guest also administered on all a pledge on energy conservation.

Mr G H V Rao, Senior Regional Manager, HPCL, proposed a vote of thanks, adding to it his own suggestions on energy conservation. Dr. D C Pandey, Head, Technical Directorate, was also present on the dais. The programme was compered by Mr M C Ratori, Sr. Hindi Officer.

Thereafter, the Chief Guest flagged off on 'Awareness Vehicle' to spread the message of oil conservation throughout the state. In the end, the school-children of KV-IIP & GIC, Miyanwala joined the Chief Guest & others in forming a human chain on 'Save Oil' message.



**Dr Anjan Ray, Director, CSIR-IIP, flanked by the invited dignitaries at the lamp lighting ceremony**



*'Save Oil' message through human chain formation*

**NATIONAL SCIENCE DAY, FEBRUARY 28, 2017**

National Science Day was celebrated in the Institute on 28<sup>th</sup> February, 2017. In 1928, Sir Chandrashekhar Venkat Raman had discovered the radiation effect involving the inelastic scattering of light later known as the "Raman Effect". Sir C V Raman was awarded the Nobel Prize on December 11, 1930 for this discovery. He was the first Asian Nobel Laureate in any discipline of science. His discovery is now a powerful technique in Physical and Chemical Research, particularly for characterization of materials. February 28 is celebrated as the National Science Day by all the scientific organizations throughout the country.



*Dr Lalji Dixit lights the lamp on Science Day*

The programme was inaugurated by the Chief Guest Dr Lalji Dixit, Former Chief Scientist, CSIR-IIP, Dehradun, by lighting a lamp along with the others on the dais, viz. Dr Anjan Ray, Director, CSIR-IIP, Dr D C Pandey, Chairman, Celebrations Committee and Mr Jaswant Rai, Controller of Administration, CSIR-IIP.

Dr Anjan Ray, Director, CSIR-IIP spoke about the National Science Day and its significance and said how Sir C V Raman, despite being employed in a non-scientific job, discovered the 'Raman Effect' through his observational skills. Dr Ray welcomed the Chief Guest Dr Lalji Dixit and remembered his



*Dr Anjan Ray on Science Day*

more than three-decades-old service as scientist at the CSIR-IIP, besides his many achievements in the form of patents, supervision of doctorates, research articles and various awards.



*Dr Lalji Dixit speaks as the Chief Guest*

Dr Lalji Dixit spoke on the subject 'Raman Spectroscopy and its Applications in Petroleum,' and gave a brief life-sketch of Sir C V Raman as well. Dr Dixit explained the uses of 'Raman Effect' in various applications through a slide presentation and underlined the need of the use of this technique in the state of Uttarakhand.

In a special event of the programme, the Institute felicitated various students of the state from junior (classes 6-8) and senior (classes 9-12) groups who had attained first and second positions in the State-Level Camp, Uttarakhand Prant, called 'Vidyarthi Vigyan Manthan-2016' held on February 19, 2017 at Haridwar under the auspices of the organization called 'Vibha' (Vigyan Bharati). The mementoes were given away by Dr Anjan Ray who later presented a memento to the Chief Guest, too.

One of the students Ms Srishti Shukla of Class 11, DAV Centenary Public School, Haridwar, responded on behalf of the felicitated students and, mentioning the various achievements of India in the field of Science & Technology like the Mangal Yaan, said that it was a memorable day for all of them.

The programme, conducted by Mr M C Ratori, Sr Hindi Officer, concluded with a Vote of Thanks by Mr Jaswant Rai.



*The felicitated students*

**NATIONAL SAFETY DAY/WEEK-2017 CELEBRATIONS, MARCH 7, 2017**

46<sup>th</sup> National Safety Day/Week-2017 and the Foundation Day of the National Safety Council were celebrated at the CSIR-IIP on March 7, 2017.

Conducting the proceedings, Dr Neeraj Atray, Senior Scientist, gave the background of the formation of the National Safety Council in 1966 on March 4<sup>th</sup> after a clarion call was given by the



then President of India Dr S Radhakrishnan a few months back in December 1965 at the President's First Conference on Industrial Safety regarding the need for mitigation of accidents at the working place. The day of the formation of the National Safety Council was later designated as the National Safety Day and has been celebrated as such since 1972.



**Dr Geeta Khanna inaugurates Safety Week**

Dr Anjan Ray, Director, CSIR-IIP, Dehradun, administered a Safety Pledge on the employees and all present, and said that as an Institute devoted to research in petroleum, we understand that although petroleum, petroleum products and petro-chemicals are essential for the growth of the nation, any error in its usage, experimentation, production or use can cause great loss. He reminded all about the Bhopal Gas Tragedy of 1984 and the Fukushima Daiichi Nuclear Disaster of Japan in 2011. He said that our own laboratories are a miniature of the industry and we have to be careful about the harmfulness of the chemicals while dealing with them. This is of the utmost importance for the country and the society as a whole besides our cities. It is the day when we deliberate on how to be careful about safety and health.



**Dr Geeta Khanna speaks**

The Chief Guest of the occasion, Dr Geeta Khanna, President, IMA, was introduced by Dr Neeraj Atray. He told that an M.D., Dr Khanna has been a recipient of several awards, including the 'Naaree Shakti Samman' of the 'Uttaranchal Mahila Association' (UMA) and runs an NGO called 'Samarpan'. She also established the Krishna Medical Centre in the town. Dr Khanna gave a technical presentation on Safety & Health and stressed that nutrition is the

backbone of health. She talked about various aspects of home safety and explained what precautions should be taken on staircases, tiled floors, rugs, bathroom, kitchen and also inside the rooms. The outside of the house is equally important from the safety angle. Dr Khanna talked about chemical hygiene, emergency preparedness and crisis plans, concept of safety for children, workplace safety, violence, occupational diseases,

accident prevention and underlined that behaviour modification is of the utmost importance and should be included in HR programmes. She further talked about disease prevention, food safety and diet, proper clothing, water safety, public sanitation, road safety, vaccination and gave a step by-step demonstration on First Aid, CPR & AED. She also answered the queries of the audience.



**Dr Manoj Srivastava**

The second presentation was by Dr Manoj Srivastava, Principal Scientist, CSIR-IIP, on '*VOC (Volatile Organic Compound) Emissions in Gasoline Retailing Operations; Solutions for their Abatement; CSIR-IIP's Efforts in this Direction*'. Dr Srivastava talked about the hazards of gasoline (petrol) and the escape of the benzene-containing vapours in the environment. This phenomenon has been observed in petrol pumps where workers are

continuously exposed to them, and the citizens in general when such gasoline stations are situated in market places or populated areas. He told that gasoline or petrol is the most volatile of all refinery products. VOC's happen at various stages, i.e. the refinery, the transportation, the loading and unloading stages and refuelling stages. They involve issues of health and environment and stock losses and thus, revenue losses. Dr Srivastava also talked about short-term and long-term effects of gasoline vapour exposure and said the more the ppm of VOC in emissions, the more the hazard. He gave the examples of air pollution e.g., Delhi's smog phenomenon. That is why the reduction of carcinogenic benzene is our concern, which is now at 1% by volume. Dr Srivastava then talked about the need for the installation of Vapour Recovery Systems (VRS) at petrol pumps and demonstrated a video on international VRS standards. Dr Srivastava also talked about the CSIR-IIP's efforts and said that the CSIR-IIP, the CSIR-IITR and the TERI had conducted studies on benzene concentration and health effects and said that the CSIR-IIP's efforts have seen VOC's go down by 75% and benzene contents by 90%, which, in turn, has resulted in improvement of air quality, health conditions, and reduction of revenue losses. Dr Srivastava also answered the questions of the audience.

In the end Mr Jaswant Rai, Controller of Administration, CSIR-IIP, gave a Vote of Thanks.

#### **WORKSHOP ON CYBER SECURITY, FEBRUARY 28, 2017**

In view of increasing ATM and bank fraud cases and other cyber crime cases occurring through various social networking sites, officers of the Cyber Crime Police Station, Dehradun hosted a workshop in the Institute on February 28, 2017 to educate the officers and employees of the Institute on how to pre-empt such frauds through precautions and awareness of the *modus operandi* of such crimes and criminals.

Inspector Mr Bharat Singh and Mr Mahrut Sah besides Sub-Inspector Mr Ved Prakash Thapliyal of the Cyber Crime Police Station, Dehradun addressed the gathering, which included Mr



**Cyber Police Officers conducting the workshop**

AK Jain, Chief Scientist, Mr Jawant Rai, CoA and Dr DC Pandey, Head, Technical Directorate, besides scientists, officers and employees.

#### MoU's/NDA's SIGNED

- MoU with the Chhattisgarh Bio-fuel Development Authority, Department of Energy, Govt. of Chhattisgarh, for creation of Robust Rural Network for Collection, Storage & Supply of *Jatropha Curcas* Seed (Ratanjot), and other Tree-Borne Oilseed Crops (TBOs) with a view to produce (Jet A-1) aviation fuel for demonstration flights in India and development of a techno-commercial feasibility report, January 12, 2017
- Non-disclosure Agreement with M/s Sud-Chemie India Pvt. Ltd, Delhi for 'Evaluation of Sud-Chemie catalysts; scale-up of catalysts developed' at Sud-Chemie, February 14, 2017
- MoU with the ONGC Energy Centre Trust, New Delhi on 'Thermo-chemical hydrogen generation through partially open-loop S-I process involving  $H_2S$  incineration:  $H_2S$  incineration to  $SO_2$ ', March 9, 2017
- MoU with the Indian Institute of Technology, Delhi, for academic collaboration, March 11, 2017
- MoU with the Institute of Bio-resources and Sustainable Development (IBSD), Imphal, Manipur on 'Loktak lake bio-mass (para-grass) based bio-refinery for fuels and chemicals: value-addition through bio-technological and thermo-chemical platform', March 22, 2017
- MoU with the M/s Cairn India Limited, Gurgaon on 'Naptha for distillation and  $CS_2$  measurement', March 23, 2017

#### RESEARCH ACTIVITIES

##### Sponsored Projects Taken Up

- Detailed evaluation studies on crude oil sample of NBP Field
- Detailed evaluation studies on crude oils from Koyali Terminal
- Detailed studies on jute batching oil (JBO)
- Detail evaluation studies on Mahsana CTF crude oils
- Detailed evaluation studies on KNK crude oils
- Characterization of the crude oil of Cluster-7 field of Mumbai offshore
- Analysis of furnace oil samples
- Loktak lake bio-mass (para-grass)-based bio-refinery for fuels and chemicals: value-addition through bio-technological and thermo-chemical platform
- Conformity of production/evaluation of vehicle (2016-17)
- Short crude oil assay

##### In-house Projects Taken Up

- Regulated and ultra-fine particle (UPF) emission measurement from in-use vehicles running on Indian roads

#### RESEARCH OUTPUT

##### Papers Published

- Enhanced catalytic properties of mesoporous mordenite for benzylolation of benzene with benzyl alcohol, *Sandeep K Saxena* and *Nagabhatla Viswanadham*, Applied Surface Science, **392**, 384-390, January 2017
- Desulphurization of gas oil in a packed-bed extractor: Optimization of operating parameters for simultaneous maximization of efficiency and yield by desirability approach, *Sunil Kumar*, *V C Srivastava*; *S M Nanoti* and *Pooja Yadav*, Canadian Journal of Chemical Engineering, **95**(1), 142-149, January 2017
- Techno-economic evaluation of top-, middle-, and bottom-divided wall-column configurations for benzene, toluene, and xylene processing in aromatic production plant, *Sunil Kumar*, *Shreya Gupta* and *S M Nanoti*, Separation Science and Technology, **52**(1), 122-131, Jan 2017
- Degradation of carbazole, dibenzothiophene and polyaromatic hydrocarbons by recombinant *Rhodococcus* sp., *Samiya Khan*, *D K Adhikari*, *Sanjay Gupta* and *Nidhi Gupta*, Bio-technology Letters, **39**(2) 277-281, February 2017
- Synthesis of a novel efficient anti-oxidant for use in lubes and bio-diesels, *Aruna Kukrety*, *Om P Sharma*, *Mukesh K Poddar*, *Neeraj Atray* and *Siddharth S Ray*, Petroleum Chemistry, **57**(1), 100-105, 2017
- Synthesis of RE Y zeolite for formulation of FCC catalyst and the catalytic performance in cracking of n-hexadecane, *Nurudeen Salahudeen*, *Abdulkarim S Ahmed*, *Ala'a H Al-Muhtaseb*, *Mohammed Dauda*, *Baba Y Jibril*, *N Viswanadham* and *Sandeep K Saxena*, Research on Chemical Intermediates, **43**(1) 467-479, 2017
- Ex-situ Cu(0) nano-particle-mediated SET-LRP of methyl methacrylate/styrene-methyl methacrylate in a biphasic toluene-water system, *Ankushi Bansal*, *Nikita Singhal*, *Vineeta Panwar*, *Arvind Kumar*, *Umesh Kumar* and *S S Ray*, RSC Advances, **7**(18), 11191-11197, February 2017
- Phosphazene-based novel organo-inorganic hybrid salt: synthesis, characterization and performance evaluation as multi-functional additive in polyol, *Raj Kumar Singh*, *Aruna Kukrety*, *R C Saxena*, *Ajay Chouhan*, *Suman L Jain* and *S S Ray*, RSC Advances, **7**(22), 13390-13397, March 2017
- Effect of metal-support interaction on activity and stability of Ni-CeO<sub>2</sub> catalyst for partial oxidation of methane, *Rajib Kumar Singha*, *Astha Shukla*, *Aditya Yadav*, *L N Sivakumar Konathala* and *Rajaram Bal*, Applied Catalysis B: Environmental, **202**, 473-488, March 2017
- Low temperature dry reforming of methane over Pd-CeO<sub>2</sub> nano-catalyst, *Rajib Kumar Singha*, *Aditya Yadav*, *Astha Shukla*, *Manoj Kumar* and *Rajaram Bal*, Catalysis Communication, **92**, 19-22, March 2017
- Seven-coordinated chiral uranyl(VI) salen complex as effective catalyst for C-H bond activation of dialkylanilines



under visible light, *Mohammad Azam, Saud I Agata Al-Resayes Trzesowska-Kruszynska, Rafal Kruszynski, Pawan Kumar and Suman L Jain*, Polyhedron, **124**, 177-183, March 2017

- Nickel nano-particles grafted on reduced graphene oxide (rGO/Ni) as efficient photo-catalyst for reduction of nitroaromatics under visible light irradiation, *Amer Al-Nafiey, Anurag Kumar, Malika Kumar, Ahmed Addad, Brigitte Sieber, Sabine Szunerits, Rabah Boukherroub and Suman L Jain*, Journal of Photo-chemistry & Photo-biology A: Chemistry, **336**, 198-207, March 2017
- Cu-functionalized nano-crystalline ZSM-5 as efficient catalyst for selective oxidation of toluene, *N Viswanadham, Sandeep K Saxena and Ala'a H Al-Muhtaseb*, Materials Today: Chemistry, **3**, 37-48, March 2017
- Physico-chemical and tribo-physical properties of trioctylalkylammonium bis(salicylato)borate (N888n-BScB) ionic liquids: effect of alkyl chain length, *Rashi Gusain, Paramjeet S Bakshi, Somenath Panda, O P Sharma, Ramesh Gardas and O P Khatri*, Physical Chemistry: Chemical Physics, **19**(9), 6433-6442, March 2017
- Recent progress in the preparation of eco-friendly lubricants and fuel additives through organic transformations of bio-materials, *Raj Kumar Singh, Aruna Kukrety, Ajay Chouhan, Neeraj Atray and S S Ray*, Mini-Reviews in Organic Chemistry, **14**(1), 44-55, March 2017

#### Chapter(s) in Book(s)

- *Hydro-thermal Liquefaction of Lignocellulosic Bio-mass Components: Effect of Alkaline Catalyst*, Rawel Singh, Bhavya B Krishna, Thallada Bhaskar, Bio-fuels 2017 Part of the series 'Green Energy and Technology', 69-84, March 2017, Editors : Avinash Kumar Agarwal, Rashmi Avinash Agarwal, Tarun Gupta, Bhola Ram Gurjar
- *Effect of Alcohol Blending on Performance of Kerosene-fuelled Four-stroke Spark Ignition Genset*, M K Shukla, Eshan Singh, Sunil Pathak, Bio-fuels 2017 Part of the series 'Green Energy and Technology', 229-245, March 2017, Editors : Avinash Kumar Agarwal, Rashmi Avinash Agarwal, Tarun Gupta, Bhola Ram Gurjar

#### Patent(s) Sealed Abroad

- A method for increasing gas oil yield and energy efficiency in crude oil distillation, *Sunil Kumar, S M Nanoti and M O Garg*, USA, Patent No. 9,546,324, dt. **17.01.2017**
- A single-step catalytic process for conversion of naphtha to diesel-range hydrocarbons, *N Viswanadham, Peta Sreenivasulu, Sandeep K Saxena, Rajiv Panwar, Devaki Nandan and Jagdish Kumar*, USA, Patent No. 9598649, dt. 21.03.2017

#### Patent(s) Filed Abroad

- An improved process to produce aromatics-rich aviation fuel along with other C<sub>1</sub>-C<sub>24</sub> hydrocarbons, *A K Sinha, Mohit Anand, Saleem Akthar Farooqui, Rakesh Kumar, R K Joshi, Rohit Kumar, Tasleem Khan and Parvez Alam*, USA, Application No. **15/510598**, dt. 10.03.2017

#### Patent(s) Filed in India

- An improved continuous process for conversion of low-cost and high-FFA oils to alkyl ester, *Neeraj Atray, Ajay Kumar, Ponnakanti Nagendramma, D P Bangwal, D K Adhikari and M O Garg*, Application No. 201711000453, dt. 05.01.2017
- Residue Hydrocracking with waste plastic as hydrogen donating agent, *Kirtika Kohli, Ravindra Prajapati, S K Maity and M O Garg*, Application No. 201711001597, dt. 16.01.2017
- An improved process for synthesis of lower olefins from syngas using boron-doped nano-structured iron catalyst, *Indrajit K Ghosh and Ankur Bordoloi*, Application No. 201711004658, dt. 09.02.2017

#### TRAINING PROGRAMMES ORGANIZED

##### Programmes on Petroleum Refining Technology

- For the Chemical Engineers of the Indian Oil Corporation Limited (IOCL), New Delhi, January 16 – March 3, 2017
- For the Officers of the Indian Oil Corporation Limited (IOCL), New Delhi, March 6-17, 2017

##### Other Programmes

- Training programme on '*Indian Road Traffic and Energy Efficiency – Challenges and Opportunities*' for the Officers of the Ministry of Road Transport and Highways (MRTH), New Delhi, January 9-13, 2017



**Faculty & trainees of the training programme on 'Indian Road Traffic and Energy – Challenges and Opportunities' for MoRTH, New Delhi January 9-13, 2017**

- Training programme on '*Indian Road Traffic and Energy Efficiency – Challenges and Opportunities*' for the Officers of the Ministry of Road Transport and Highways (MRTH), New Delhi, March 6-10, 2017
- Training programme on '*Crude Oil Assay: TBP and High Vac Distillation*' for the Executives of the HPCL-Mittal Energy Limited (HMEL), Bathinda, March 27-31, 2017

#### EXCHANGE OF KNOWLEDGE

##### Papers Presented in Conferences/Seminars/Symposia

**Asia-Pacific Congress on Catalysts (APCAT-7), Mumbai, January 17-21, 2017**

- Slurry phase hydrocracking using micro-emulsion-based catalysts, *Ravindra Prajapati, Kirtika Kohli, S K Maity and M O Garg*
- Evaluation of residue hydrotreating catalysts based on different mesoporous supports, *Kirtika Kohli, Ravindra Prajapati, S K Maity and M O Garg*

- Copper cobalt-supported mesoporous carbon nitride as an efficient catalyst for CO hydrogenation, *Subhasis Das, Manideepa Sengupta and Ankur Bordoloi*
- Selective heterogeneous hydroamination over Cu nanoparticles-supported nitrogen-doped carbon nano-spheres, *Subhasis Das, Manideepa Sengupta and Ankur Bordoloi*

**Symposium on International Automotive Technology (SIAT-2017), ARAI, Pune, January 18-21, 2017**

- Variation of real-world ambient temperature and humidity in Indian cities and its impact on vehicular emissions, *S K Pathak, Yograj Singh, Vineet Sood and M O Garg*
- Transient performance and emissions analysis of a heavy-duty diesel engine, *Devendra Singh, K A Subramanian and M O Garg*
- Investigation on tribological properties of 2-Methylfuran (MF)/ diesel as an engine fuel, *M K Shukla, O P Sharma and M O Garg*
- Comparison of on-road vehicular emissions and fuel economy with the test data generated on chassis dynamometer test cycle, *Robindro Lairenlakpam, Amar K Jain, Poonam Gupta and Wittiosn Kamei*

**Symposium on Surface Science & Nano-technology- 25<sup>th</sup> Anniversary of the Surface Science Society of Japan (SSSJ), Kansai Branch, Kansai, Kyoto, Japan, January 25-27, 2017**

- Surface science and friction in thin-film lubrication, *O P Khatri*
- Waste bio-mass valorization through development of eco-friendly additives from sustainable bio-materials, *Raj Kumar Singh, Aruna Kukrety and S S Ray*

**PREC-2017, Petroleum & Renewable Energy Conclave, DIT, Dehradun, March 22-24, 2017**

- Microwave-assisted synthesis of glycerol carbonate using heterogeneous catalyst, *Piyush Gupta, Babita Behera and S S Ray*

**Colloquia and Talks**

- Dr Harish Kumar Chakravarty, Chemistry Department at the University of Hawaii in collaboration with the Lawrence Berkeley National Laboratory, USA, *Experimental, Theoretical and Modelling Investigation of Low, Intermediate and High-Temperature Combustion Chemistry of Bio-fuels*, January 13, 2017
- Dr Jeff Kenvin, Micromeritics Co., USA, *Quantifying the Complex Architecture of Hierarchical Faujasite Zeolites and the Impact on Diffusion*, January 23, 2017
- Dr D K Tuli, Executive Director and Centre Co-ordinator, DBT-IOC Centre for Advanced Bio-Energy, Faridabad, *Lignocellulosic Ethanol: Commercialization Efforts and Gap Areas*, February 20, 2017
- Dr Ojasvi Sharma, Ph.D. (Chemical Engineering), IIT, Kanpur, *Case Studies on Design and Control for Robust Economic Process Operation*, February 22, 2017
- Mr Rajesh Parishwad, External Relations, Manager (India), Royal Society of Chemistry, UK, *Introduction to Royal Society of Chemistry and Its Initiatives in India*, February 22, 2017
- Ms Adita Saini, M.Tech, Electrical Energy Systems, GB Pant University of Agriculture and Technology, Pantnagar,

*Performance Investigation of Switched Reluctance Motor Drive with Various Converter Topologies*, February 27, 2017

- Mr Kuldeep Mamtani, Ohio State University, USA, *Carbon-based Materials as Oxygen Reduction Reaction (ORR) and Oxygen Evolution Reaction (OER) Electro-catalysts in Acidic Media*, March 6, 2017
- Dr Rajesh S Kempegowda, Research Scientist, SINTEF Energy Research, Trondheim, Norway, *Integrated System Analysis and Process Engineering Strategy Of Potential Bio-refinery Process Routes: Cleaner Production Process; Optimization of Heat; Power, Bio-fuels From Bio-mass; Solid Residues*, March 14, 2017
- Dr Tamas Kumar Panda, Post-Doctoral Research Associate, New York University, Abu Dhabi, UAE, *Functionality, Dimensionality and Alloying Effect in Metal Organic Frameworks (MOFs) for CO<sub>2</sub> Uptake and Proton Conduction*, March 15, 2017
- Dr Subhabrata Banerjee, Tokyo Institute of Technology, Ookayama, Tokyo, Japan, *Development of Ordered Porous Material Aiming Energy Application: A Synthetic Approach*, March 22, 2017

**DISTINGUISHED VISITORS**

- Mr P Charles, Divisional Manager, Dr Nagesh Kini, Senior Manager and Mr Shiraj Misal, Deputy Manager, Thermax Limited, Mumbai, February 27, 2017
- Mr Manish David, Sr. Manager, BPCL, NOIDA, March 8, 2017
- Dr Zsuzsanna Czegeny, Senior Research Fellow, Dr Zoltan Sebestyen, Junior Research Fellow, Hungarian Academy of Sciences, Budapest and Prof Norbert Miskolczi, Associate Professor, University of Pannonia, Veszprem, Hungary, March 14, 2017
- Dr Sudhakar Sagi, Dr Boss Prof Robert Berry, Aston University, UK, March 29, 2017
- Mr T Nanda Kumar, Chief Manager and Mr Arun Shukla, Chief Manager, GAIL India Ltd., NOIDA, March 29-30, 2017

**INTERNATIONAL VISITS**

- Dr O P Khatri, Senior Scientist, visited Japan for technical discussions on collaborative research on "Graphene Thin Film Self-Assembled on Silicon" and to deliver an invited talk at the "Symposium on Surface Science & Nano-technology (SSSN-Kansai)", Japan, January 19-28, 2017.
- Dr V V D N Prasad, Principal Scientist and Dr Ankur Bordoloi, Scientist, visited CSIRO Earth Science and Resource Engineering at Clayton, Victoria, Australia and RMIT University, Melbourne, Australia to attend project review meetings and discussions as part of a joint collaborative research project under the Australia-India Strategic Research Fund (AISRF) sponsored by the DST, Govt of India and the Australian Government, February 6-17, 2017
- Mr Kalyan Singh, Senior Technical Officer visited Protectoseal Company, USA Bensenville, Illinois for business development relationship with the CSIR-IIP, product training as well as in connection with demonstration of Octane analyzers installed in Total Refinery, Port Arthur, Texas, USA, March 27-31, 2017



## **PARTICIPATION IN CONFERENCES/ SEMINARS/ WORKSHOPS/ BRAINSTORMING SESSIONS/ DISCUSSIONS**

- Dr D C Pandey, Principal Technical Officer, "Seminar on Chemicals and Petrochemicals : Leveraging Technology for Gujarat's Next Leap Towards Global Leadership/Vibrant Gujarat Global Summit 2017", Gandhinagar, January 12, 2017
- Dr Anjan Ray, Director, inaugural function of the Asia Pacific Congress on Catalysis (APCAT-7) at Mumbai, organized by the Institute of Chemical Technology (ICT) and the Catalysis Society of India (CSI), Mumbai, January 17, 2017
- Dr Anil K Sinha, Principal Scientist, Dr Raj Kumar, Scientist, Mr Hari Singh, Mr Aditya Rai, Mr Gloria, Mr Rohit Kumar, Technical Assistant, Asia-Pacific Congress on Catalysis (APCAT-7) organized by the Institute of Chemical Technology (ICT) and the Catalysis Society of India (CSI), Mumbai, January 17-21, 2017
- Dr Anjan Ray, Director, project review meeting entitled "Field study to ascertain the effectiveness of different measures taken up by the OMC's on Benzene Emissions at Petrol Stations in India", CSIR Hqrs, New Delhi, January 18, 2017
- Mr L Robindro, Senior Scientist, "Symposium on Automotive Technology (SIAT-2017)", ARAI, Pune, January 18-21, 2017
- Mr Amar Jain, Chief Scientist; Dr S S Ray, Senior Principal Scientist, Dr Sanat Kumar, Senior Principal Scientist, Mr S K Ganguly, Senior Principal Scientist, Mr Sunil Kumar, Scientist, "Refining and Petrochemicals World India-2017", New Delhi, January 18-19, 2017
- Dr Anjan Ray, Director, "Refining and Petro-chemicals World India-2017", New Delhi ; also delivered a talk on January 19, 2017
- Dr Anjan Ray, Director, a talk in the IChE, Delhi, January 21, 2017
- Dr Anjan Ray, Director, "National Workshop on Establishing a Research Network on Vehicular Emissions Reduction (EARNOVER-2017)", CSIR-CRRI, New Delhi, January 23, 2017
- Mr Mahesh B Khot and Ms Arjit Jana, Post-Doctoral Fellows, "National Workshop on Applications of Transmission Electron Microscopy in Life Sciences", organized by the CSIR-CDRI, Lucknow, January 23-25, 2017
- Mr K D P Lakshmee Kumar, Technical Assistant, "International Conference on Nano for Energy and Water (NEW)-2017 and Indo-French Workshop on Water Networking", UPES-Dehradun, February 22-24, 2017
- श्री सत्य निकेतन यादव, तकनीकी अधिकारी, 'मेक इन इंडिया' पर संगोष्ठी-सह-प्रदर्शनी, सीएसआइआर-सीएम्आरआइ, दुर्गापुर, 26-27 फरवरी, 2017
- Mr M K Shukla, Senior Scientist and Thallada Bhaskar, Principal Scientist, "International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017)", Center for Innovative and Applied Bio-processing, Mohali, February 26-28, 2017
- Dr Anjan Ray, Director, "1<sup>st</sup> National Science Day Lecture" by Prof R A Mashelkar at the Raj Bhawan Auditorium, Dehradun,

February 28, 2017

- Dr Anjan Ray, Director, CSIR-IIP, Dr Thallada Bhaskar, Principal Scientist, Dr Anil K Jain, Principal Scientist, Dr Debashish Ghosh, Scientist, Dr O P Khatri, Senior Scientist, Mr M K Shukla, Senior Scientist, Dr Raj Kumar Singh, Scientist, Mr Sudhakar Reddy, Scientist, Mr Aditya Prakash and Ms Archana Kumari, "4<sup>th</sup> 3R International Scientific conference on Material Cycle and Waste Management (4<sup>th</sup> 3RINCs)", organized by CSIR-IIP, Dehradun, India Habitat Centre (IHC), New Delhi, March 8-10, 2017
- Ms Nisha and Mr Amit Kumar, JRF, Petroleum & Renewable Energy Conclave (PREC-2017), DIT, Dehradun, March 22-24, 2017

## **IMPORTANT MEETINGS ATTENDED/VISITS**

- Dr Anjan Ray, Director, CSIR-IIP's Visits & Meetings:
  - ❖ With Prof V Ramgopal Rao, Director, Indian Institute of Technology, Delhi, January 6, 2017
  - ❖ Nobel Prize Series-India 2017, Gandhinagar, Gujarat January 9-10, 2017
  - ❖ CSIR Headquarters, New Delhi (Mission Directorate/RPBD/Cluster Committee), January 11, 2017
  - ❖ 3RINCs Meeting at Science Centre, New Delhi January 11, 2017
  - ❖ With Mr Sanjay Bhargava, GM (R&D) at Bharat Petroleum Corporation Ltd., New Delhi, January 11, 2017
  - ❖ For an MoU with the Chhattisgarh Bio-fuel Development Authority, Govt of Chhattisgarh, Raipur, January 12, 2017
  - ❖ With Prof Anil Kumar & Mr John Reynolds (USA), IITB, January 14, 2017
  - ❖ Reliance - Mumbai, January 16, 2017
  - ❖ GAIL, NOIDA, January 23, 2017
  - ❖ Sectoral Monitoring Committee Meeting, CSIR-IMMT, Bhubaneswar, January 24, 2017
  - ❖ Along with Mr M K Shukla and Mr Devender Singh, Senior Scientists, meeting of the Sectoral Monitoring Committee for review of the CSIR 12<sup>th</sup> FYP projects under the theme "Ecology and Environment", CSIR-NPL, New Delhi, February 3, 2017
  - ❖ Bureau of Indian Standards (BIS) regarding offer of Chairmanship of the Sectional Committee on the Methods of Sampling and Tests for Petroleum, its Products, Gaseous Fuels and Lubricants, (PCD01), February 2, 2017
  - ❖ PMC meeting on "Residue Hydrocracking", Centre for High Technology (CHT), Ministry of Petroleum and Natural Gas, Govt of India, NOIDA, February 6, 2017
  - ❖ Kick-off meeting on Bio-mass Project at Centre for High Technology (CHT), Ministry of Petroleum and Natural Gas, Govt of India, NOIDA, February 6, 2017
  - ❖ Meeting on Review of Autonomous Bodies Consultancy Development Centre (CDC), DSIR, Ministry of Science and Technology, Mehrauli Road, New Delhi, February 6, 2017
  - ❖ Reliance Industries, Nagothane, February 7, 2017
  - ❖ Governing Council (GC) of the Centre for High Technology (CHT), Ministry of Petroleum, Govt of India, New Delhi, February 9, 2017
  - ❖ BPCL-Numaligarh Refinery, Numaligarh, February 13, 2017
  - ❖ CSIR-North-East Institute of Science and Technology, Jorhat,

February 14, 2017

- ❖ R&D Conclave, Manor, Mussoorie, February 16-18, 2017
- ❖ Meeting regarding Project on OMC's on Benzene Emission at Petrol Stations in India, CSIR Headquarters, New Delhi, February 23, 2017
- ❖ Meeting with the Director-General, CSIR on IPU Activities, CSIR Headquarters, New Delhi, February 23, 2017
- ❖ Meeting at the Engineers India Limited, New Delhi, February 23, 2017
- ❖ Meeting with Dr Harsh Vardhan, Hon'ble Minister for Science & Technology and Earth Sciences, New Delhi, March 3, 2017
- ❖ Attendance at the signing ceremony of the MoU between the and ONGC on the collaborative project entitled "*Thermochemical hydrogen generation through partially open-loop S-I process involving H<sub>2</sub>S incineration: H<sub>2</sub>S incineration to SO<sub>2</sub>*" in SCOPE Minar, New Delhi, March 9, 2017
- ❖ Along with Dr Manoj Srivastava, Principal Scientist, Dr S K Maity, Senior Scientist and Mr Saleem Akhtar Farooqui, Scientist, "79<sup>th</sup> Meeting of the Scientific Advisory Committee (SAC) on Hydrocarbons of MoPNG", New Delhi, March 17, 2017
- ❖ Delivered a talk on "*Unleashing the Vast Bio-mass Potential of Uttarakhand Villages – Technology & Commercial Perspectives*" in the Session 8 (Wind & Bio-mass Sectors) of the Petroleum & Renewable Energy Conclave, DIT University, Dehradun, March 24, 2017
- Mr Amar K Jain, Chief Scientist, "CSE's Round Table Conference on Reinventing In-use Emissions Compliance Regime", in Cypress Hall, India Habitat Centre, New Delhi, February 3, 2017

#### HRD/AWARENESS EVENTS

##### Programmes at the CSIR-HRDC, Ghaziabad

- Dr Ajay Kumar, Mr Swapnil Divekar, Mr Sudhakar Reddy, Scientists and Mr Pradeep Kumar, Technical Assistant, Workshop on "*Design and Analysis of Experiments*", January 18-20, 2017
- Dr Indu Shekhar, Dr Bipul Sarkar and Dr Iranna Gogeri, Scientists, '*Induction Training Programme for Newly-Recruited Scientists*', February 6- 15, 2017
- Mr Inderjeet Ghosh, Scientist, Mr D P Bangwal, Principal Technical Officer and Manisha Sahai, Technical Assistant, '*Workshop on the Art of Public Speaking and S & T Communication*', March 6-8, 2017

##### Other Programmes

- Mrs Poonam Gupta, Senior Principal Scientist, DST-sponsored training programme on '*Managing Changes in Government Organizations*', IMTR Goa, January 23-27, 2017

#### EXPOSURE OF STUDENTS TO OUR SCIENTIFIC INTELLECT & INFRASTRUCTURE

##### Visits of different groups of students/cadets/ trainees/faculty members from the following institutions/ colleges/regions/ states:

- A team of 48 students of B.Tech. (Energy and Environment Engineering), Agricultural Engineering College and Research Institute, Tamil Nadu Agricultural University, Coimbatore, along with 3 faculty members, January 19, 2017

- 30 cadets of the Rashtriya Indian Military Academy (RIMC) along with two masters, January 30, 2017
- A team of 41 students of M.Sc. (Micro-biology & Biotechnology), Department of Bio-sciences, Saurashtra University, Rajkot along with 4 faculty members, February 6, 2017
- A team of 27 students of B.Tech (Petro-chemicals & Petroleum), Guru Gobind Singh College of Engineering Technology, Talwandi Sabo, Bathinda, Punjab, along with 3 faculty members, March 29, 2017

#### IMPORTANT MEETINGS

- Sectoral Monitoring Committee (SMC) Meeting of the CSIR 13<sup>th</sup> FYP Project under the theme '*Adequate and Clean Energy*', 31<sup>st</sup> January – 1<sup>st</sup> February, 2017. Prof K T Jacob and Prof A K Shukla, IISc, Bengaluru; Dr (Mrs) Malti Goel, Emeritus Scientist, JNU, Delhi; Dr Anuradha Ganesh, Cummins Technologies, Pune; Dr Leena Srivastava, Vice-Chancellor, TERI University, Delhi; Dr Sudeep Kumar, CSIR HQ., New Delhi; Dr S K Tiwari, CSIR Headquarters, New Delhi and Mr Anoj K Chadar, CSIR Headquarters, New Delhi, were present.
- Mini-DME Project closure meeting was held during March 21-22, 2017 at the Institute. The Australian team comprised of Dr J Patel, CSIRO, Australia, Dr F Hasan, UoM, Australia and Ms Peggy Stasinos, CSIRO

#### HONOURS & AWARDS

##### (Late Reporting)

- Mr V Silambarasan, Technician, won the First prize for participation in ISSG-Borosil Glass Blower Competition held during the "*18<sup>th</sup> National Seminar on the Rôle of Scientific Glassblowing in Rural Development*", organized by the Indian Society of Glassblowers, USIC Gandhigram Rural Institute, Gandhigram, December 15-17, 2017. *Congratulations!*



Mr Silambarasan receives the prize from T Sarvanan, GM, Borosil Glass Works Ltd.

#### PhD/D Phil DEGREE AWARDS

- Mr Subhash Kumar was awarded PhD degree for his thesis entitled '*Influence of Molecular Composition of Petroleum Feed-stocks and Catalyst on Mesophase Development and Coke Morphology* (done under the supervision of Dr Manoj Srivastava, Principal Scientist) by the Academy of Scientific & Innovative Research (AcSIR), January 17, 2017
- Mr Rajib Kumar Singha was awarded PhD degree for his thesis entitled '*Activation of Methane over Nano-structured*



*Catalysts'* (done under the supervision of Dr Rajaram Bal, Senior Scientist) by the Academy of Scientific & Innovative Research (AcSIR), February 13, 2017

- Mr Mohit Anand, was awarded PhD degree for his thesis entitled '*Hydroprocessing Route to Renewable Transportation Fuels*' (done under the supervision of Dr A K Sinha, Principal Scientist) by the Academy of Scientific & Innovative Research (AcSIR), March 17, 2017 *Congratulations!*

### गणतंत्र दिवस समारोह, 26 जनवरी, 2017

- राष्ट्र का 68वाँ गणतंत्र दिवस संस्थान में 26 जनवरी, 2017 को अथाह देशभक्ति एवं उल्लास के साथ मनाया गया। संस्थान के निदेशक, डॉ अंजन रे ने राष्ट्र-ध्वज फहराया, संस्थान के सुरक्षा गार्डों तथा केंद्रीय विद्यालय के विद्यार्थियों के मार्चपास्ट की सलामी ली एवं बीते वर्ष की उपलब्धियों की चर्चा की। केंद्रीय विद्यालय, सीएसआइआर-भापेसं के बच्चों द्वारा सांस्कृतिक प्रस्तुतियाँ दी गईं। इस अवसर पर भापेसं परिवार के सदस्य सहित भारी मात्रा में श्रोता उपस्थित रहे।



निदेशक, भापेसं द्वारा गारद-निरीक्षण



केंद्रीय विद्यालय के बच्चों द्वारा सांस्कृतिक प्रस्तुति

### WORKSHOPS/SEMINARS ORGANIZED

- दहन प्रयोगशाला द्वारा आयोजित जागरूकता कार्यक्रम, 30-31 मार्च, 2017
- उन्नत गुड़ भट्टियों पर जागरूकता हेतु एक एक-दिवसीय कार्यशाला

संस्थान व पी०सी०आर०ए०, नई दिल्ली द्वारा मेरठ के ग्राम दादरी में उन्नत गुड़-भट्टियों पर विभिन्न गावों के गुड़-भट्टी मालिकों हूतु एक एक-दिवसीय कार्यशाला का आयोजन किया गया। इसमें



### जागरूकता कार्यशाला का एक दृश्य

पी०सी०आर०ए के निदेशक श्री सुरेन्द्र प्रताप सिंह, भारतीय पेट्रोलियम संस्थान से वैज्ञानिक श्री पंकज कुमार आर्य, तकनीकी अधिकारी श्री सतीश कुमार, तकनीशियन श्री राजेंद्र कुमार, परियोजना सहायकगण श्री शेखर सिंह व श्री ठाकुर सिंह रावत उपस्थित रहे।

- ईंधन बचाने वाले उन्नत बर्तन का वितरण

संस्थान में किए गए शोध से विकसित ईंधन-दक्ष उन्नत पतीले का डोईवाला के नूनवाला स्थित गुरुद्वारे में संस्थान के वैज्ञानिक श्री पंकज कुमार आर्य, तकनीकी अधिकारी श्री सतीश कुमार, तकनीशियन श्री राजेंद्र कुमार, परियोजना सहायकगण श्री शेखर सिंह और श्री ठाकुर सिंह रावत द्वारा वितरण किया गया।

- उन्नत बायोमास चूल्हे का वितरण

हरिद्वार के ग्राम फेरुपुर में संस्थान के वैज्ञानिक श्री पंकज कुमार आर्य व तकनीकी अधिकारी श्री सतीश कुमार ने उन्नत बायोमास चूल्हों की विशेषताओं का वर्णन करते हुए संस्थान के श्री राजेंद्र कुमार, तकनीशियन तथा परियोजना सहायकगण श्री शेखर सिंह व श्री ठाकुर सिंह रावत की सहायता से ग्रामीणों को चूल्हों का वितरण भी किया।

### हमारा क्रीड़ा पक्ष / OUR SPORTING SIDE

#### 48<sup>th</sup> Shanti Swarup Bhatnagar Memorial Tournament (Indoors)-Final, CIMAP, Lucknow, March 3-5, 2017

The Institute participated in the SSBMT (Indoors)-Final held at the CSIR-CIMAP, Lucknow. The CSIR-IIP teams represented the Institute in the Table Tennis and Badminton team events. The Institute teams won the team event championship in both the events. The winners were:

**Table Tennis (Team Event):** Mr N K Rawat (Captain), Dr Soumen Dasgupta & Mr S C Bhatt.

**Badminton (Team Event) :** Mr B B Dimri (Captain), Mr Tikra Ram Bhatt and Mr Farid Mohd.



Badminton Event Winners

Table Tennis Event Winners

### The CSIR-IIP Badminton Team Reaches the Finals of the CGEWCC Tournament, March 27-29, 2017

The CSIR-IIP Badminton Team consisting of the following sportsmen participated in the Team Event (Men's), Men's Singles (Open), Men's Doubles (Open), Men's Singles (Veterans) and Men's Doubles (Veterans) events of the CGEWCC Badminton Tournament 2016-17 held at the premises of the Central Auditor-General, Uttarakhand, Dehradun during 27-29 March, 2017:

Mr B B Dimri, Mr Devendra Rai, Mr N K Rawat, Mr Tikaram Bhatt, Mr Farid Mohd., Mr Himmat Singh, Mr Piyush Gupta and Mr Hemant Tiwari.

Our Team performed excellently in this tournament and reached the finals of all the events, with the following score-board:

**Team Event (Men's) – Runners-up:** Mr B B Dimri, Mr Devendra Rai, Mr Farid Mohd., Mr Tikaram Bhatt, Mr Himmat Singh and Mr N K Rawat

**Men's Singles (Open) – Winner:** Mr Devendra Rai

**Men's Doubles (Open) – Runners-up:** Mr Devendra Rai and Mr Tikaram Bhatt

**Men's Singles (Veterans) – Winner:** Mr Tikaram Bhatt

**Men's Doubles (Veterans) – Runners-up:** Mr Tikaram Bhatt and Mr N K Rawat)

### राजभाषा-संबंधी गतिविधियाँ

#### ● काव्य-कार्यशाला का आयोजन, 15 मार्च, 2017

सीएसआइआर-भारतीय पेट्रोलियम संस्थान, देहरादून के राजभाषा अनुभाग द्वारा राजभाषा हिंदी की संप्रेषणात्मक शक्ति से पुनः परिचित होने व इसके साहित्यिक पक्ष को स्पर्श कर इसमें सरकारी काम-काज में रुचि बढ़ाने के उद्देश्य से 'गद्य से पद्य बनने की यात्रा: कविता के आईने में हिंदी और उर्दू' विषयक एक काव्य-कार्यशाला का आयोजन किया गया। इस काव्य-कार्यशाला में संस्थान के कविता व साहित्य के प्रेमी कर्मचारी व अन्य संस्थान-सदस्य उपस्थित थे। इस कार्यशाला को दो सत्रों में आयोजित किया गया, जिसमें प्रथम-सत्र में संस्थान के कविता व साहित्य-प्रेमियों ने पूर्व-घोषित विषय 'मेरा परिचय' पर स्वरचित कविताएं प्रस्तुत कीं। आपसी संवाद की पृष्ठभूमि पर आयोजित यह कार्यक्रम प्रतियोगिता की सीमाओं में बंधा नहीं था।

### संस्थान-परिवार के समाचार

#### (क) संस्थान-परिवार में वृद्धि

##### (i) नई नियुक्तियाँ

- श्री अविनाश सूर्यकांत म्हेत्रे, वैज्ञानिक 06.01.2017
- श्री प्रनव दास, वैज्ञानिक 09.01.2017

##### (ii) स्थानांतरण पर आगत

- श्री विक्रम सिंह, सहायक (सा0) ग्रेड-I, सीएसआइआर-एचआरडीसी, गाजियाबाद से 01.02.2017  
**स्वागत!**

##### (ख) पदोन्नतियाँ

#### प्रशासनिक अधिकारी, से प्रशासन नियंत्रक

- श्री जसवंत राय 02.01.2017

#### सहायक (सा0)-II से सहायक (सा0)-I

- श्री राकेश पंत 28.02.2017

#### वरिष्ठ वैज्ञानिक से वरिष्ठ प्रधान वैज्ञानिक

- डॉ एन विश्वनाथम् 01.01.2013

#### वरिष्ठ वैज्ञानिक से प्रधान वैज्ञानिक

- डॉ0 एस त्रिपाठी 02.04.2012

- डॉ0 सनत कुमार 02.01.2014

- डॉ0 नीरज आत्रेय 15.03.2014

#### वैज्ञानिक से वरिष्ठ वैज्ञानिक

- श्री अरक्षित माझी 05.07.2013

- श्री डी वी नायक 12.07.2013

- डॉ0 सुनील कुमार 17.07.2013

- डॉ0 अजय कुमार 18.07.2012

- श्री मृत्युंजय कुमार शुक्ल 07.12.2013

#### वरिष्ठ आशुलिपिक से वरिष्ठ आशुलिपिक (एमएसीपी)

- श्री देवेन्द्र राय 15.10.2016

#### गुप सी (एमटीएस) से गुप सी (एमटीएस) (एमएसीपी)

- श्री घनश्याम 28.10.2016

- श्री मुकेश कुमार 29.10.2016

- श्री राम पाल 30.10.2016

- श्रीमती सर्वेश्वरी देवी 16.03.2016

- श्री कमल सिंह 17.03.2016

- श्रीमती श्याम कली 22.03.2016

**बधाइयाँ!**

##### (ग) संस्थान-परिवार से विदाई

#### (i) अधिवर्षिता पर / सेवा-विस्तारोपरांत सेवा-निवृत्ति

31 जनवरी, 2017

- श्री डी एस नेगी, सहायक (सा0) ग्रेड-I

- श्री सुदामा सिंह, बेयरा

- श्री गोपाल सिंह बिष्ट, बेयरा

**भावभीनी विदाई!**

वित्तीय वर्ष 2016-2017 के दौरान बाहरी नकदी प्रवाह / ECF during the Financial Year 2016-2017					(लाख रुपयों में / Rs. in lakhs)
Category	Govt.	Private Industries	PSE's/ Refineries	Foreign Companies	Total
Sponsored R&D	20.09287	72.46372	519.97768		612.53427
Grant-in-Aid R&D	1227.37181			3.70793	1231.07974
Collaborative/ Co-operative R&D	11.50000		33.13670		44.63670
R&D Consultancy	74.26000				74.26000
Technical Services & Misc.	24.55285	23.19426	240.22494		287.97205
Premia/Royalty		2.59016			2.59016
<b>Total</b>	<b>1357.77753</b>	<b>98.24814</b>	<b>793.33932</b>	<b>3.70793</b>	<b>2253.07292</b>

**Published by :** Director, CSIR-Indian Institute of Petroleum, Dehradun-248005, INDIA  
**Phone No. :** +91-135-2660205, **Fax :** +91-135-2660098, **E-mail:** director@iip.res.in, **Website :** www.iip.res.in  
**Publication Team :** Dr D C Pandey and M C Ratori **Assistance :** V S Rawat  
**Designed & Printed at :** Saraswati Press, Dehradun, Ph. : 0135-2726694, 9897903096