



# संकल्प

## Newsletter

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### CSIR - IIP

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### INAUGURATION OF 'सक्षम' (संरक्षण क्षमता महोत्सव)-2018, JANUARY 19, 2018

'Saksham (Sanrakshan Kshamata Mahotsav) ['सक्षम' (संरक्षण क्षमता महोत्सव)] - 2018' Programme was inaugurated at the Institute by Mr Prakash Pant, Hon'ble Minister of Finance, Parliamentary Affairs, Legal Affairs, Languages and Commercial Tax, Government of Uttarakhand. It was organised jointly by the Petroleum Conservation Research Association (PCRA) and the oil companies, viz., the IOCL, the BPCL, the HPCL etc. Mr Prakash Pant, in his address, talked about the salient features of the 'Saksham' Programme and stressed on the conservation and judicious use of natural resources. Mr Pant underlined the worrying facts which have surfaced in the recent Economic Survey and said that while the



Mr Prakash Pant inaugurates the 'Saksham' programme

utilization of natural resources is safe up to a maximum of 7%, it has touched 7.6% in 2016-17. We should reflect on how we should use the resources provided by nature for life. He attacked the irresponsible use of natural resources and told that this is the reason why we spend foreign exchange worth Rupees 25 crore in oil import. Mr Pant cited the example of William Hart, who is considered as the 'Father Of Natural Gas' as he had discovered Natural Gas in 1821 and which is today's clean alternative fuel. We are also using energy resources like coal beyond limits. He mentioned that it is desirable to make use of hydro-power and renewable energy. With regard to the 'Saksham' programme, he said that it is our duty to utilize natural resources in a disciplined manner and with a spirit of community & collective responsibility. Mr Pant also praised the efforts of the Institute for converting waste plastics to fuels. He said that disposal of solid waste should also be dealt with similarly through scientific approach. Citing China's example, he said that that country recycled its plastics waste into a marketable commodity and sells it especially in India, while at the same time we are amassing plastic waste in our country. It is important how we can contribute with Co-ordination, particularly between an

### A word from the Director...



The New Year started in right earnest with various national and international functions such as "SAKSHAM" (Sanrakshan Kshamata Mahotsav) ['सक्षम' (संरक्षण क्षमता महोत्सव)-2018 Programme]), an International Conference on Advances in Analytical Sciences (ICAAS), celebrations of the National Science Day, the National Voter's Day, and much more. A special highlight of this period was the visit of Mr Prakash Pant, Hon'ble Minister of Finance, Parliamentary Affairs, Legal Affairs, Languages and Commercial Tax, Government of Uttarakhand, on the occasion of the SAKSHAM programme aimed at raising public awareness about conservation of petro-products.

The CSIR-IIP also participated actively in major external workshops/conferences/symposia and in the Refining & Petrochemical Technology Meet organized by the CHT at Bhubaneswar too. Our presence at the 105<sup>th</sup> Indian Science Congress, held at the Manipur Central University, Imphal, under the aegis of CSIR, contributed to the 'Best Stall Award' being conferred upon the CSIR. A moment of special pride was when the Institute was recognized with the (Uttarakhand) Governor's Innovation Award for developing an innovative technology ('Conversion of Waste Plastics to Fuel') on the occasion of the National Science Day at the Rajbhavan, Uttarakhand. The CSIR-IIP is also involved in research in a good number of projects with a vision to focus strongly on translational and industry-oriented research relevant to our social, economic and environmental concerns.

During this quarter, nine patents were granted and six were filed in India and abroad. A total of 11 papers with good impact factor were published and three books edited by our scientists. Three Ph D degrees were awarded to the students. One MoU with the academia – the Indian Institute of Technology, Roorkee – was inked during this period. On the other hand, a free Medical Health Check-up Camp was organized in our campus; our players participated actively in the 49<sup>th</sup> Shanti Swarup Bhatnagar Memorial Tournament (Outdoors) organized at the CSIR-CSIO, Chandigarh, as also in the G S Sidhu Memorial Table Tennis Tournament and the A P Mitra Memorial Badminton Tournament held at the CSIR-NISCAIR, New Delhi.

We have also initiated some new programmes such as Skill Development – for youth seeking to strengthen their employability, and 'Jigyasa' – for the students of the Kendriya Vidyalayas. We have also been engaged in organizing the visits of a huge number of students from various universities/ colleges/ schools to inculcate a thirst for science in them.

I sincerely thank our stakeholders and the dedicated team of CSIR-IIP scientists and staff for their untiring efforts. Let us pledge to make 2018 a year of safe, healthy and environmentally-sensitive operations to underpin our continuing success.

With warm regards and best wishes,

Anjan  
(Dr Anjan Ray)

individual, the nature and the society at large is the need of the hour. Mr Prakash Pant also administered a 'Saksham' pledge on all present.

At the outset of the programme, the students of the Kendriya Vidyalaya, CSIR-IIP, performed Saraswati Vandana. Thereafter, Mr Nagendra Singh, State-level Co-ordinator of Oil Industries, Uttarakhand, and Chief Divisional Retail Sales Manager, IOCL, Dehradun, talked about the theme of the 'Saksham' programme,



**Mr Pant at the podium**

which translates to *“The Responsibility of Fuel Conservation Calls for the Participation of Each and All”*. He highlighted the prominent features of the month-long programme. Mr Kanwaljot Singh, Territory Manager, BPCL, spoke about some energy-saving tips for daily life. Dr Anjan Ray, Director, CSIR-IIP, introduced the Chief Guest and talked about the problem of carbon footprint consequent to the excessive use of petro-products and also expressed concern over the climatic changes as a result of this. In

the end, Mr Neeraj Gupta, Deputy Director and State Co-ordinator, PCRA, gave a vote of thanks. Dr D C Pandey, Chairman, Celebrations Committee, CSIR-IIP, co-ordinated the programme.



**'Save Oil' message through human chain**

The inaugural function ended with the flagging off of an Awareness Vehicle by the Chief Guest. This was followed by forming a human chain by the students of KV-IIP and all present followed by releasing balloons to spread the message 'Save Oil' all around.

The programme was attended by the other representatives of oil and gas companies, media persons, scientists and other staff of the Institute, students of the GIC, Miyanwala, as also the Kendriya Vidyalaya, CSIR-IIP. The programme was compered by Mr M C Ratori, Senior Hindi Officer, CSIR-IIP.

#### **WORKSHOP ON 'MANAGING CORROSION IN THE OIL AND GAS SECTOR' ORGANIZED BY THE CSIR AND THE FIPI AT GHAZIABAD, JANUARY 30-31, 2018**

The Council of Scientific and Industrial Research (CSIR), in association with the Federation of Indian Petroleum Industries (FIPI) organized a workshop on Managing Corrosion in the Oil and Gas Sector during January 30-31, 2018 at CSIR-Human Resource Development Centre, Ghaziabad. Key topics that were covered included corrosion problems in oil and gas industries, corrosion mitigation by chemical treatment, metallurgical solutions, coatings and cathodic protection in addition to failure analysis and corrosion monitoring.

The workshop opened with welcome remarks addressed by Mr.

Amar Kumar Jain, Acting Director, CSIR-Indian Institute of Petroleum, Dehradun. The workshop was inaugurated by the Chief Guest Dr R K Malhotra, Director-General, FIPI, who highlighted the dangers of corrosion to everything from pipelines, bridges, public buildings to vehicles, water and waste water systems and home appliances. Cost of corrosion study worldwide showed the calculated direct cost exceeding \$2.5 trillion is almost 3-4% of the GDP of every nation. It is estimated that 25 to 30% of annual corrosion costs could be saved if optimum corrosion management practices are employed. On this occasion, Dr Malhotra also released an Abstract Book and a Souvenir.

Dr Vijaya Mohanan Pillai, Director, CSIR-Central Electro-Chemical Research Institute, Karaikudi, delivered the plenary lecture on the topic *“Impact of Nanotechnology on Corrosion Research”*. He emphasised on the importance of nanotechnology on coating materials citing specific examples of applications of electronic materials, intelligent materials, materials for chemical sensors and corrosion prevention. Dr R C Saxena, Technical Officer, CSIR-IIP, Dehradun, proposed a vote of thanks in the end.



**Dignitaries release the Workshop Souvenir**

A panel of eighteen distinguished speakers from the Oil & Gas Sector, as well as scientists from the National laboratories engaged in cutting-edge research and break-through ideation were invited to this workshop.

#### **NATIONAL SCIENCE DAY CELEBRATIONS, MARCH 5, 2017**

After participating in the joint National Science Day Celebrations at the Raj Bhavan, Dehradun, Uttarakhand, on February 28, 2018, the Institute celebrated the National Science Day on March 5, 2018.

February 28 is observed as the National Science Day (NSD) all over India in the memory of the discovery of 'Raman Effect' by Sir Chandrashekhra Venkataraman on this day in 1928 for which he was later awarded the Nobel Prize in 1930. These celebrations have been held since 1987 on the initiative of the National Council for Science and Technology Communication, which is an institution under the Department of Science and Technology. Every year a theme is attached to the Day. For 2018, it is *'Science and Technology for a Sustainable Future.'*

Dr Anjan Ray, Director, informed that in the NSD celebrations at the Raj Bhavan, while the stall of the Institute was adjudged as the best among all, the Technology of Converting Waste Plastics to Diesel, developed by the Institute, bagged the *'Governor's Innovation*





**The Chief Guest inaugurates the National Science Day**

Award.' Dr Ray said that it is science which brings in changes in people's lives. He said "science is people,' that is to say, science should be dedicated to the well-being and upliftment of people."

Mr Prajatantra Gangele of 'Vijnana Bharati' ('VIBHA'), Uttarakhand, said that the purpose of science is to serve the people and the country. He said that the 'VIBHA' organization is working with the mission of 'Science for the Society' since 1982, which includes



**Dr Anjan Ray on National Science Day**

energy, environment, waste management, Ayurved, etc. 'VIBHA' also organized the first 'World Ayurved Congress' in 2002 and upon its initiative, the Govt. of India created the 'AYUSH Ministry'. It is working on dissemination of science especially among the children and on indigenous science and technology to ensure that poverty is eradicated and health is ensured for all.



**Dr L N Misra speaks**

Dr Anjan Ray, Director, introducing the Chief Guest, said that Dr L N Misra is presently the Chief Research Advisor at the Patanjali Research Foundation, Haridwar. Dr Ray cited his varied achievements and said that he was formerly a Chief Scientist at the CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow.

Dr L N Misra chose the topic 'Chemo-Biological Portrayal of Ashwagandha – the Indian

Ginseng' for his NSD lecture through a PowerPoint presentation. He introduced the subject by speaking on the interdependent relationship between the different plants, colourful plants, good vegetation, water-bodies and dense forests. Dr Misra spoke on natural products – whether plant-based or animal-based and noted that plants, being static, have to evolve some strategy to survive and thrive well against pollution, drought, salinity, wind conditions, radiation, cold, availability or non-availability of light, the presence of heavy metals in the earth, etc. Dr Misra spoke on the biogenesis of phenolics, alkaloids, terpenoids, phenylalkanoids as well as natural lipids, and then referred to the traditional Indian system of medicine. He talked about medicinal plants as therapeutic agents besides plant-derived well-known drugs and all the anti-cancer drugs discovered between 1981-2010.

Dr Misra also talked about simple chemical structures like alkanes, cyclopropane, alkenols, etc. *Ashwagandha* or *Withania somnifera* has anti-cancer, rejuvenating, anti-microbial, anti-arthritis, hepatoprotective and cardio-vascular properties, he said.

The programme concluded with a vote of thanks by Mr Jaswant Rai, Controller of Administration. The dais, was also shared by Dr D C Pandey, Chairman, Celebrations Committee, who co-ordinated the whole event. The programme was compered by Mr M C Ratori, Sr Hindi Officer.

**INTERNATIONAL CONFERENCE ON 'ADVANCES IN ANALYTICAL SCIENCES (ICAAS)', MARCH 15-17, 2018**



**Inauguration of ICAAS by the Chief Guest**

A 3-day 'International Conference on Advances in Analytical Sciences (ICAAS-2018)', organized jointly by the CSIR-Indian Institute of Petroleum, Dehradun and the Indian Society of Analytical Scientists (ISAS) (Delhi Chapter), from March 15-17, 2018. The conference was inaugurated on 15<sup>th</sup> March, 2018, by the Chief Guest Dr S S V Ramakumar, Director, (R&D), IOCL and the Guest of Honour, Dr Anjan Ray, Director, CSIR-IIP. Many delegates from India and abroad participated. Dr Ramakumar highlighted the importance of analytical chemistry in understanding the underlying science for finding solutions to various unsolved problems. Advances in analytical chemistry have helped in the development of high-quality lubricating oil, grease, BS-VI grade gasoline and diesel. He stressed on the enhanced co-operation between analytical groups of different organisations for exploring new frontiers. Dr Anjan Ray emphasized the importance of analytical chemistry in various disciplines of science like petroleum,





**Dr S S V Ramakumar expressing his thoughts**

pharmaceuticals, environment, forensic sciences, minerals etc. 21 eminent speakers from India and abroad representing various industries and companies enlightened the delegates about the advancement in analytical sciences and instrumentation.



**Dr Anjan Ray at the ICAAS**

In the inaugural session Dr Michael Palmer, Vice-President (Sales), XOS, USA, delivered his keynote address on the topic 'Advantages of Real-time Process Analysis in Petroleum Industry'. Dr J Christopher, General Manager, IOCL (R&D) and Chairman, ISAS (Indian Society of Analytical Scientists) (Delhi Chapter) welcomed the Chief Guest, the invited guests, the participants of the conference, the faculty members, the scientists and media persons as well.

The inaugural session was followed by two technical sessions and one business session. The General body meeting of the ISAS was also held after the first day's technical session. Dr G S Kapur, Chief General Manager, IOCL (R&D) and Secretary, ISAS (Delhi Chapter), highlighted the importance and achievements of the ISAS and informed that the society is celebrating its Silver Jubilee this year.



**Dr G S Kapur speaks**

An Abstracts Book was also released on the occasion.

Dr K K Bhagchandani, from the Advanced Chemistry Development



**Dignitaries release the Abstracts Book**

Inc., Toronto, Canada, spoke on 'Taking Informed Decisions for Chemical Developments Based on Laboratory Intelligence Created at R&D'. Dr Chandra Saravanan, Reliance Industries Ltd, about the 'Importance of Laboratory Intelligence', Dr Eric Ziskend, LexMar Global Inc., USA, on 'Plant Optimization using Real-time Property Measurements', Dr S S Ray, Sr. Principal Scientist, CSIR-IIP and Dr G S Kapur, on 'The Importance of NMR in the field of Catalysis and Polymers', Dr A S Sarpal, Head, Laboratories, OCS GmbH and Dr T Bhaksar, Principal Scientist, CSIR-IIP, on how the advancement in analytical sciences has helped in the development of bio-fuels, Dr N Sathish, Senior Scientist, CSIR-Advanced Materials Processes and Research Institute, Bhopal, on the 'Raman Characterization of Graphene and Graphene-reinforced Composites', Dr V Banerjee, Former Executive Director, Oil and Natural Gas Corporation Limited, Dehradun, on 'Climate Change, Global Response and the Rôle of Analytical Sciences', Dr Mohan Prasad, Sun Pharmaceutical Industries Ltd., Gurgaon, on 'Management of Impurities in Generic Drug Development', Dr Sankha Bandyopadhyay, UOP (HITC), Gurgaon, on 'The Process Analyzers and Chemometrics', Dr Ashok K Sharma, Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonapat), on 'The Improved Electro-chemical Properties of Metal-doped Polymer/C Electrode Materials', Dr Akash Deep of CSIR-CSIO, Chandigarh, on 'The Metal Organic Framework', and Dr Vineet Kumar of FRI, Dehradun, on 'Natural Products'.

On the concluding day, 55 faculty members and researchers from various universities like the Delhi University, the Lucknow University, the DIT, Dehradun, the ONGC, the Hindustan Petroleum, Mumbai, the UPES, Dehradun, the Doon University, Dehradun, the Maharshi Dayanand University, Rohtak, the Kurukshetra University, Kurukshetra, the IIT, Delhi, the CSIR-NIIST, Thiruvananthapuram, etc. and Institutes the CSIR-IIP, the IOCL, presented their original research work. About 130 posters were also presented. The prizes were given away by Dr S S Ray, Sr Principal Scientist, CSIR-IIP, and Head, Analytical Sciences Division, Dr Y K Sharma, Ex-Senior Principal Scientist, CSIR-IIP, Dr G S Kapur, IOCL & Mr S Deepgupta, Oil India Ltd., to the 12 Best Posters. The conference was ably convened by Dr Raj Kumar Singh, Scientist.

**MoU's/NDA's SIGNED**

- MoU with the Indian Institute of Technology, Roorkee, 'Edible Oil Blend from Lignocellulosic Pentosans and other Inexpensive raw materials', January 23, 2018



- Non-disclosure Agreement with M/s Toyo Engineering India Pvt. Ltd. Mumbai, 'High level review of Basic Engineering Activities for AVU Unit', February 12, 2018

## RESEARCH ACTIVITIES

### Sponsored Projects Taken Up

- Methanol-diesel dual-fuel engine for stationary applications
- Tribo-performance investigation of GL4 gear oil
- Investigation of parameters responsible for reforming and identification of effective foam control additives for LPG sweetening catalyst - Thoxcat ES
- High-level review of basic engineering activities of AVU unit
- Development of environment-friendly corrosion inhibitors for mineral lube-base oil
- Preliminary evaluation of furnace oil
- Studies on wash oil from a petrochemical complex
- Evaluation of characteristic properties of fire-resistant hydraulic fluids
- Endurance test on diesel engine using transient facility

### In-house Projects Taken Up

- Development of catalyst(s) based on nano concepts for the dehydrogenation of propane to propylene
- Investigation of internal diesel injector deposits in engines fuelled by BS-IV diesel and biodiesel
- Catalysis for sustainable development (CSD)
- CSIR integrated skill initiatives programme
- Digitization /scientific management of official records
- Up-gradation of vacuum residue by addition of kerosene as a solvent

### Sponsored Projects Completed

- Establishing proof of concept for processing straight- run naphtha for recovery of naphthenes and aromatics
- Material compatibility and emission performance measurement with ethanol-blended gasoline (E20)
- Gear teeth surfaces: distress rating of transmission gear box and rear axle unit
- Feasibility study for processing HWD stream in SUD at Digboi Refinery of IOCL (AOD)
- Compatibility studies for lubricants and greases
- Miscibility & compatibility (physico-chemical/performance) test for lubricants
- Homogeneity & miscibility test as per IS:13656 test procedure
- Analysis of fire-resistant hydraulic fluid 'Lub Hydraul HFDU-68'

### In-house Projects Completed

- Studies to assess bituminous binder properties for flexible bitumen pavement by rheology

## RESEARCH OUTPUT

### Papers Published

- Comprehensive review of combustion, performance and emissions characteristics of a compression ignition engine fuelled with hydroprocessed renewable diesel, *Devendra Singh, K A Subramanian and M O Garg*, Renewable and Sustainable Energy Reviews, **81**, Part 2, 2947-2954, January 2018

- Synthesis of green fluorescent carbon quantum dots using waste polyolefins residue for Cu<sup>2+</sup> ion sensing and live cell imaging, *Archana Kumari, Amit Kumar, Sumanta Kumar Sahu and Sanat Kumar*, Sensors and Actuators B: Chemical, **254**, 197-205, January 2018
- Performance evaluation of fungal cellulases with dilute acid pre treated sugarcane bagasse: A robust bioprospecting strategy for bio fuel enzymes, *Lavika Jain and Deepti Agrawal*, Renewable Energy, **115**, 978-988, January 2018
- Experimental study on the efficacy of MoS<sub>2</sub> microfluids for improved tribological performance, *Ajay Kumar, G D Thakre, Pankaj K Arya, L N S Konathala, Sandip Saran, Raghuvir Singh and A K Jain*, Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology, **231**(1), 107-124, January 2018
- Hydrogenation of 5-hydroxymethylfurfural to 2,5 dimethylfuran over nickel supported tungsten oxide nano-structured catalyst, *Nazia Siddiqui, Anupam Singha Roy, Reena Goyal, Rubina Khatun, Chandrashekar Pendem, Appala Naidu Chokkapu, Ankur Bordoloi and Rajaram Bal*, Sustainable Energy & Fuels, **2**(1) 191-198, January 2018
- Single-cell oil from oleaginous yeast grown on sugarcane bagasse-derived xylose: An approach toward novel biolubricant for low friction and wear, *Sheetal Bandhu, Mahes B Khot, Tripti Sharma, O P Sharma, Diptarka Dasgupta, O P Khatri and Debashish Ghosh*, ACS Sustainable Chemistry & Engineering, **6**(1), 275-283, 2018
- Pyrolysis kinetics and thermodynamic parameters of castor (*Ricinus communis*) residue using thermogravimetric analysis, *Ravneet Kaur, Poonam Gera, Mithilesh Kumar Jha and Thallada Bhaskar*, Bioresource Technology, **250**, 422-428, February 2018
- K-Promoted Pt-Hydroxalcite catalyst for production of H<sub>2</sub> by aqueous phase reforming of glycerol, *Chandrashekar Pendem, Bipul Sarkar, Nazia Siddiqui, L N Sivakumar Konathala, Chinnappan Baskar and Rajaram Bal*, ACS Sustainable Chemistry & Engineering, **6**(2), 2122-2131, February 2018
- Zinc grafted to magnetic nanostarch for cyclic carbonate synthesis from propargylic alcohols and CO<sub>2</sub> at room temperature, *Vineeta Panwar and Suman L Jain*, Journal of CO<sub>2</sub> Utilization, **24**, 306-314, March 2018
- Chemically-functionalized graphene for lubricant applications: Microscopic and spectroscopic studies of contact interfaces to probe the role of graphene for enhanced tribo-performance, *Ajay Chouhan, Harshal P Mungse, Om Prakash Sharma, Raj Kumar Singh and O P Khatri*, Journal of Colloid and Interface Science, **513**, 666-676, March 2018
- Effect of composting on the thermal decomposition behaviour and kinetic parameters of pig manure-derived solid waste, *Vaibhav Dhyani, Mukesh Kumar Awasthi, Quan Wang, Jitendra Kumar, Xiuna Ren, Junchao Zhao, Hongyu Chen, Meijing Wang, Thallada Bhaskar and Zengqiang Zhang*, Bioresource Technology, **252**, 59-65, March 2018

### Book(s) Edited

- 'Coal and Biomass Gasification: Recent Advances and Future Challenges' (Energy, Environment, and Sustainability Book Series (ENENSU), Editors: Santanu De, Avinash Kumar Agarwal,

V S Moholkar, Thallada Bhaskar, Publisher: Springer, Singapore, 2018

- 'Prospects of Alternative Transportation Fuels', (Energy, Environment, and Sustainability Book Series (ENENSU)), Editors: Akhilendra P Singh, Rashmi Agarwal, Avinash Kumar Agarwal, Atul Dhar, M K Shukla, Publisher: Springer, Singapore, 2018
- 'Pyrolysis Oil Upgrading to Fuels by Catalytic Cracking: A Refinery Perspective', D V Naik, Vimal Kumar, B Prasad, Prospects of Alternative Transportation Fuels, (Energy, Environment, and Sustainability Book Series) 2018, Editors: A Singh, R Agarwal, A Agarwal, A Dhar, M K Shukla, Publisher: Springer, Singapore, Chapter : 'Water-in-Diesel Nanoemulsion Fuels for Diesel Engine: Combustion Properties and Emission Characteristics', Hemant Kumar, M K Shukla, Vimal Kumar

#### Patent(s) Sealed Abroad

- A method of consolidated bio-processing of lignocellulosic biomass for production of l-lactic acid D K Adhikari, Jayati Trivedi and Deepti Agrawal, USA, Patent No. 9856500, dt. 02.01.2018
- A process for preparation of p-toluic acid by liquid phase oxidation of p-xylene in water, M P Saxena, A K Gupta, S K Sharma, D P Bangwal and Krishan Kumar, Germany, Patent No. 112005003520.4, dt. 04.12.2017
- Ni--Pt--ZrO<sub>2</sub> nanocrystalline oxide catalyst and process thereof, useful for production of syngas by combining oxy-dry reforming of natural gas, Rajaram Bal, Bipul Sarkar, Reena Goyal, Ankur Bordoloi, Chandrashekar Pendem and L N Sivakumar Konathala, USA, Patent No. 9,889,434, dt. 13.02.2018
- Catalyst for selective dehydrogenation / oxidative dehydrogenation reactions and process for the preparation thereof, Rajaram Bal, Bipul Sarkar, Rajib Kumar Singha, Chandrashekar Pendem, Shankha Shubhra Acharyya and Shilpi Ghosh, USA, Patent No. 9908101, dt. 06.03.2018

#### Patent(s) Filed Abroad

- Process for selective production of N-methyl-2-pyrrolidone (NMP), Indrajit K Ghosh, Suman L Jain, Praveen K. Khatri, S S Ray and M O Garg, Japan, Application No. 2018-504889, dt 30.01.2018
- Process for selective production of N-methyl-2-pyrrolidone (NMP), Indrajit K Ghosh, Suman L Jain, Praveen K Khatri, S S Ray and M O Garg, USA, Application No. 15/749,426, dt 31.01.2018
- Process for selective production of N-methyl-2-pyrrolidone (NMP), Indrajit K Ghosh, Suman L Jain, Praveen K. Khatri, S S Ray and M O Garg, Europe, Application No. 16741397.0, dt 19.02.2018
- A process for production of benzene-lean gasoline by recovery of high-purity benzene from unprocessed cracked gasoline fraction containing organic peroxides, M O Garg, S M Nanoti, B R Nautiyal, Sunil Kumar, Prasenjit Ghosh, Nisha, Pooja Yadav, Jagdish Kumar, Manish Tiwari, M R G Rao and N S Murthy, Canada, Application No. 2,881,392, 14.02.2018

#### Patent(s) Sealed in India

- Process to prepare hierarchical mesoporous zeolites with

varying micro- and meso-porosities using organosilane templates, Anil Kumar Sinha, Bharat Singh Rana and Pragati Prajapati, Patent No. 289935, dt. 27.11.2017

- An improved process for production of 1,2-propanediol from glycerol over solid catalysts without addition of external hydrogen, Arunabha Datta, Rajaram Bal, Chandrasekhar Pendem and Sarvjeet Singh, Patent No. 29018711, dt. 01.12.2017
- An improved vacuum swing adsorption (VSA) process to recover high purity CO<sub>2</sub> from CO<sub>2</sub>-containing effluent streams, A N Goswami, Anshu Nanoti, Pushpa Gupta, Soumen Dasgupta, M O Garg, H P Dulhadinomal, R Mukhopadhyay and Rakesh Swami, Patent No. 292278, dt. 30.01.2018
- An improved process for preparation of Cu-Cr oxides for selective oxidation reactions, Rajaram Bal, Bipul Sarkar, Shankha Shubhra Acharyya, Shilpi Ghosh, Chandrashekar Pendem and Jagdish Kumar, Patent No. 293337, dt. 26.02.2018
- A process for separating aromatics and removal of sulphur compounds from the heart-cut of catalytically cracked gasoline, M O Garg, S M Nanoti, B R Nautiyal, Sunil Kumar, Prasenjit Ghosh, Nisha, Pooja Yadav, Jagdish Kumar, Manish Tiwari, M R G Rao and N S Murthy, Patent No. 294311 dt. 14.03.2018

#### Patent(s) Filed in India

- A domestic cooking burner for piped natural gas, Pankaj K Arya, Satish Kumar, G D Thakre, Amar K Jain and Surendra Pratap, Application No. 20171104697, dt. 28.12.2017 (Jointly with PCRA)

#### TRAINING PROGRAMMES ORGANIZED

##### Programmes on Petroleum Refining Technology

- For the Chemical Engineers of the Indian Oil Corporation Limited (IOCL), New Delhi, January 22 – March 9, 2018



**Students & the faculty of the programme  
dt. January 22- March 9, 2018**

- For the Chemical Engineers of the Indian Oil Corporation Limited (IOCL), New Delhi, March 26 – May 11, 2018

##### Other Programmes

- Training Programme on 'Testing of Bitumen, Bitumen Binders' for the Executives of HPCL-Mittal Energy Ltd., (HMEI), Bhatinda, January 3-5, 2018
- Training programme on 'Electric Vehicle for Future Urban



*Mobility – Challenges and Opportunities'* for the Officers of the Ministry of Road Transport and Highways (MRTTH), New Delhi, March 3-9, 2018

#### EXCHANGE OF KNOWLEDGE

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

##### *Conference for Advances in Catalysis in Energy and Environment (CACEE-2018), Tata Institute of Fundamental Research (TIFR), Mumbai, January 10-12, 2018*

- Methanol synthesis from carbon dioxide and hydrogen over modified Cu/Zno/MgO promoted catalyst, *Sachin Kumar Sharma, Manoranjan Kumar and Rajaram Bal*
- Catalytic oxidation of aniline to azoxybenzene over Ag/Fe<sub>2</sub>O<sub>3</sub> catalyst using H<sub>2</sub>O<sub>2</sub> as an oxidant, *Bappi Paul, Shubhadeep Adak, Manoranjan Kumar, Gurmeet Singh and Rajaram Bal*
- Photochemical oxidative coupling of 2-Napjthols using Hybrid rGO/MsO<sub>2</sub> nanocomposite under visible light irradiation, *Anurag Kumar, MS Aathira and Suman L Jain*
- Synthesis of highly active Pd nanoparticle-supported iron oxide nanocrystals for organic transformation, *Astha Shukla, Sonu Bhandari and Rajaram Bal*
- NiCo nanoparticles over mesoporous modified silica toward methane reforming, *Subhasis Dey and Ankur Bordoloi*
- Hydrogenation of 5 Hydromethylfurfural to 2,5 Dimethylfuran over nickel-supported tungsten oxide nanostructured catalyst, *Nazia Siddiqui, Rubina Khatun, Sonu Bhandari and Rajaram Bal*
- Mitigation of biogas over Ni-Co nano composites for production of syngas, *Rishi Kumar Gupta and Ankur Bordoloi*

##### *22<sup>nd</sup> Refining & Petrochemical Technology Meet (RPTM), Bhubaneswar, CHT, January 13-15, 2018*

- New method for increasing significant gas oil yield and energy efficiency in crude distillation unit, *Sunil Kumar, S M Nanoti and Avinash Mhetre*
- Development of alternative processes for lower olefins (C<sub>2</sub>-C<sub>4</sub>): taking a step forward, *Indrajit K Ghosh and Ankur Bordoloi*
- A novel bi-functional catalyst for production of heavy hydrocarbons from light paraffin feedstocks, *N Viswanadham, Amit Sharma, Rajeev Panwar and Sandeep K Saxena*

##### *23<sup>rd</sup> National Symposium on Catalysis (Catsymp-23), Bengaluru, January 17-19, 2018*

- Low-temperature PROX (preferential oxidation) of carbon monoxide on novel Cu-nano catalysts supported on CeO<sub>2</sub> in the presence of excess hydrogen, *Shubhaeep Adak, Bappi Paul, Shubhashree Mishra and Rajaram Bal*
- Pulse mode sonication-induced shape-selective synthesis of Cu<sub>2</sub>O nanostructure for base-free Ullmann reaction, *Om Vir Singh, Ankit Agrawal, Rajaram Bal and Bipul Sarkar*
- CO<sub>2</sub> hydrogenation to methanol over nanocrystalline Cu/Zno/ZrO<sub>2</sub> catalyst, *Sachin Kumar Sharma, Manoranjan Kumar and Rajaram Bal*
- Surfactant-induced preparation of highly dispersed Ni-nanoparticles supported on nanocrystalline ZrO<sub>2</sub> for chemoselective reduction of nitroarenes, *Astha Shukla and Rajaram Bal*
- Highly-selective transfer hydrogenation of α,β -unsaturated

carbonyl compounds using Cu-based nanocatalysts, *Nazia Siddiqui, Rubina Khatun, Sonu Bhandari and Rajaram Bal*

- Ruthenium nanoparticles decorated over Zr<sub>0.5</sub>Ce<sub>0.5</sub>O<sub>2</sub>, *Subhasis Das and Ankur Bordoloi*
- The effect of acidity on Cu-Zn hybrid catalyst for direct synthesis of dimehtyl ether (DME) from syngas, *K D P Lakshme Kumar, B Neelam Naidu, Kaushik Ghosh, Prasenjit Ghosh and VVDN Prasad*
- K-promoted Pt-hydrotalcite catalyst for production of H<sub>2</sub> by aqueous phase reforming of glycerol, *Chandrashekhar Pandem, Bipul Srakar, L N Sivakumar Konathala and Rajaram Bal*
- Heterogeneous hydroamination over supported ionic liquid stabilized copper ions, *Manideepa Sengupta and Ankur Bordoloi*
- Dry-reforming of methane : CO<sub>2</sub> utilization and beyond, *Ankur Bordoloi*
- Nanoporous materials for catalytic applications, *N Viswanadham*

##### *24<sup>th</sup> Conference of the National Magnetic Resonance Society of India, IISER organized by NMRS, Mohali, February 16-19, 2018*

- Solid-state NMR studies of graphene oxide and graphene oxide-clay composites for dye removal, *Babita Behera, Piyush Gupta and SS Ray*

##### *International Conference on Advances in Analytical Sciences (ICAAS-2018), organized by ISAS & CSIR-Indian Institute of Petroleum, Dehradun, March 15-17, 2018*

- Synthesis and characterization of O-carboxymethylchitosan and its application for CO<sub>2</sub> absorption, *Pradeep Kumar, Akanksha Verma, Ankush Bindwal, Raj Kumar Singh and Shubham Paul*
- Influence of possible adulterants in gasoline quality control in India through physic-chemical and gas chromatographic characterization, *Bhanu Prasad Vempatapu, Jagdish Kumar and Pankaj K Kannaujia*
- Utilization of GC-MS technique for characterization of liquid products from chemical recycling of waste polystyrene, *Sayantani Saha, Rishav Goyal and Sanat Kumar*
- Analytical approach for bioremediation, *Arfin Imam, Sunil K Suman, Debashish Ghosh and Pankaj K Kannaujia*
- Study of Cobalt(II) complexes with substituted Salen-Type ligands for oxidative desulphurization of dibenzothiophene in model kerosene using H<sub>2</sub>O<sub>2</sub>, *Deependra Tripathi, Raj Kumr Singh, SS Ray and Udai P Singh*
- Lignocellulosic biomass-derived biochar as adsorbent for removal of naphthenic acids from waste water, *Raghvir Singh, D V Naik, RK Dutta, SS Ray and Pankaj K Kannaujia*
- Performance-based characterization of conventional & modified bitumen, *Kamal Kumar, Anand Singh, Vishwas Saini and Manoj Srivastava*
- Xylitol production from lignocellulosic biomass using a whole cell biocatalyst, *Diptarka Dasgupta, Preeti Sagar, Babita Behera and Debashish Ghosh*
- Exometabolic approach-applied oleaginous yeast based biofuel process, *Mahesh B Khot, Babita Behera and Debashish Ghosh*
- Microbe-induced corrosion in wastewater pipeline

infrastructure, *Arijit Jana, Diptarka Dasgupta, O P Khatri, S S Ray and Debashish Ghosh*

- Characterization of vacuum residue and its products by analytical techniques, *K S Rawat, S N Yadav and S K Maity*
- Synthesis and characterization of deep eutectic solvents based on choline chloride and ethylene glycol and their application in desulphurization of model oil, *Nisha Sudhir, Pooja Yadav, B R Nautiyal, Raj Kumar Singh and Rakesh Yadav*

#### USSTC-XII by UCOST, Dehradun, March 7-9, 2018

- Investigation of low-cost, renewable, eco-friendly biolubricants, *Jyoti Porwal, Savita Kaul, Neeraj Atray, D P Bangwal, H C Joshi and S S Ray*
- Fatty acids esterification over sulphonated graphene oxides as an efficient solid acid catalyst, *Praveen K Khatri, Raghuvir Singh, Ponnekanti Nagendramma and Suman L Jain*
- A novel binuclear ruthenium complex for visible light-assisted photoreduction of carbon-dioxide, *G M Bahuguna, Raghuvir Singh, Anurag Kumar and Suman L Jain*

#### Colloquia and Talks

- Mr Mohan Phadnis, Engineering & Safety Consultant, 'Best Safety Practices in Chemical Laboratories and Pilot Plants with Focus on Electrical and Mechanical Systems', January 19, 2018
- Mr Sandeep Chaturvedi, President, Biodiesel Association of India, 'Biodiesel - Indian Perspective', January 24, 2018
- Mr V Seshagiri, Regional Sales Manager, Analytik Jena, 'Overview of Analytik Jena of Hi Sensitivity ICPMS', February 1, 2018
- Mr Bipin Vora, PE, MS Consultant and Advisor to UOP of R&D and Marketing Managements, US, 'Petrochemical Technologies and Refinery-Petrochemical Integration', February 23, 2018
- Dr Asheesh Kumar, Department of Chemical and Biomolecular Engineering, National University of Singapore, Singapore, 'Gas Hydrates: Opportunities for Innovative Technologies', March 1, 2018
- Dr Manish Tiwari, UCL Mechanical Engineering, Faculty of Engineering Sciences, University College, London, UK, 'Nanoengineered Structures For Energy And Healthcare Applications', March 23, 2018

#### DISTINGUISHED VISITORS

- Mr Mahesh Merchant, Managing Director, M/s M K Aromatic, Bengaluru, January 18, 2018
- Dr D T Gokak, Deputy General Manager, Dr T Thorat, Chief Manager, Bharat Petroleum Corporation Limited, NOIDA and Mr Dipankar Saha, Manager, (T&S) Bharat Petroleum Corporation Limited, Mumbai, February 19-20, 2018
- Dr Mark Cullen, President & CEO and Mr. Sanjay Chhaunker, Director & India Representative, Petrosonics, USA, February 26, 2018
- Mr Arun Shukla Chief Manager, R&D, GAIL India Limited, NOIDA, February 27-28, 2018
- Dr S S V Ramakumar, Director, (R&D), IOCL, Faridabad, March 15, 2018

- Dr Michael Palmer, Vice-President, sales, XOS, USA, March 15-17, 2018
- Dr K K Bhagchandani, Advanced Chemistry Development Inc. Toronto, Canada, March 15-17, 2018
- Dr Eric Ziskend, LexMar Global Inc., USA, March 15-17, 2018
- Dr Chandra Saravanan, Reliance Industries Ltd, March 15-17, 2018
- Dr G S Kapur, Chief General Manager, IOCL (R&D), Faridabad, March 15-17, 2018
- Dr A S Sarpal, Head, Laboratories, OCS GmbH, March 15-17, 2018
- Dr N Sathish, Senior Scientist, CSIR-Advanced Materials Processes and Research Institute, Bhopal
- Dr V Banerjee, Former Executive Director, Oil and Natural Gas Corporation Limited, Dehradun
- Dr Mohan Prasad, Sun Pharmaceutical Industries Ltd., Gurgaon
- Dr Sankha Bandyopadhyay, UOP (HITC), Gurgaon
- Dr Matt Pearce, Phycofeeds, Kota University, March 26-28, 2018

#### PARTICIPATION IN CONFERENCES/ SEMINARS/ WORKSHOPS/ BRAINSTORMING SESSIONS/DISCUSSIONS/LECTURES/ MEETINGS

##### Participation by Dr Anjan Ray, Director

Besides visiting the CSIR Headquarters to discharge his additional duties as Head of the RPPBD (Research, Project Planning and Business Development) Directorate there on various occasions, Dr Anjan Ray participated in a number of discussions, meetings, etc. some of which are detailed below:

- A talk at the Second International Conference of the International Society for Energy, Environment and Sustainability (ISEES) on 'Sustainable Energy and Environmental Challenges (SEEC-2018)', IISc Bengaluru, January 2, 2018
- An interactive talk on 'National R&D Perspective : Role of CSIR' through Video Conferencing in the '35<sup>th</sup> Induction Training Programme for the Newly-recruited Scientists', HRDC, Ghaziabad, January 22, 2018
- 'International Conference on Sustainable Biofuels 2018 - A joint event of Mission Innovation and Biofuture Platform', New Delhi, February 26-27, 2018
- 'EU-India Conference on Advanced Biofuels', jointly organized by the Ministry of Petroleum & Natural Gas, Government of India and the European Commission, New Delhi, March 7-8, 2018

##### Participation by the other S&T Staff

- Dr Jasvinder Singh, Principal Technical Officer, 'Second International Conference on Sustainable Energy and Environmental Challenges (SEEC-2018)', IISc, Bengaluru, December 31 to January 3, 2018
- Mr Gurmeet Singh, Mr Bappi Paul, Mr Manoranjan Kumar and Mr Sachin Kumar Sharma, 'Conference on Advances in Catalysis in Energy and Environment CACEE-2018, Tata Institute of Fundamental Research (TIFR)', Mumbai, January 10-12, 2018
- Dr Suman L Jain, Senior Scientist and Dr B R Nautiyal, Principal



Technical Officer, 'Conference on India-Centric R&D', Mumbai, January 12-13, 2018

- Mr K D P Lakshme Kumar, Technical Assistant, Mr Gurmeet Singh, Dr Bappi Paul, Mr Manoranjan Kumar and Mr Sachin Kumar Sharma, '23<sup>rd</sup> National Symposium on Catalysis (CATSYMP 23)', Bengaluru, January 17-19, 2018
- Dr V V D N Prasad, Principal Scientist, 'Natural Gas Conclave-2018', New Delhi, January 18, 2018
- Mr Amar K Jain, Chief Scientist, Dr S M Nanoti, Ex-Chief Scientist, Dr Anshu Nanoti, Senior Principal Scientist, Dr Suman L Jain, Senior Scientist, Dr D C Pandey Principal Technical Officer, Dr R C Saxena, Principal Technical Officer, Dr Ajay Kumar, Senior Scientist, Mr Swapnil Divekar, Scientist, Mr B Neelam Naidu, Technical Assistant Dr Aruna Kukrety, Technician, Mr Kamal Kumar, Technical Officer, Mr Pradeep Tyagi, Technical Assistant, Mr Vishwas Saini, Technical Assistant, Ms Ekta Faujdar, Ms Himani Negi, Mrs Pooja Yadav, Mr Tarun Sarkar, Sayantani Saha, Mr Nilesh Manwar, Mr Ankit Agarwal, Ms Kritika Kohli and Mr Aditya Rai, 'Workshop on Managing Corrosion in Oil & Gas Sector', organized by the CSIR-IIP at HRDC, Ghaziabad, January 30-31, 2018
- Dr R C Saxena, Principal Technical Officer, presented a project proposal in the Research Advisory Council (GAIL) Meeting at the GAIL Corporate Office, New Delhi, February 6, 2018
- Dr Suman L Jain, Senior Scientist, Mr Indrajit Ghosh, Scientist and Dr Bipul Sarkar, Senior Scientist, attended the Research Advisory Council (GAIL) Meeting, GAIL Corporate Office, New Delhi, February 6, 2018
- Dr Babita Behera, Scientist, '24<sup>th</sup> Conference of the National Magnetic Resonance Society of India', IISER, Mohali, February 16-19, 2018
- Dr Ajay Kumar, Senior Scientist and Mr Swapnil Divekar, Scientist, 'ENVIRO-2018 – Environment & Safety Management for Petroleum Industry', New Delhi, February 26-27, 2018
- Mr G M Bahuguna, Principal Technical Officer, Mr Praveen K Khatri, Technical Assistant and Ms Jyoti Porwal, Technical Assistant, '12<sup>th</sup> Uttarakhand State Science and Technology Congress(USSTC)', UCOST, Dehradun, March 7-9, 2018
- Dr Babita Behera, Scientist, Dr Deepti Agarwal, Scientist and Dr Suman Lata Jain, Senior Scientist, 'National Conference on Technological Empowerment of Women', New Delhi, March 8-9, 2018

#### IMPORTANT MEETINGS

- **3<sup>rd</sup> Consortium Meeting for Demonstration & Development of Iodine-Sulphur (I-S) Cycle, January 19, 2018**

Dr B Bhargava, DG, OEC; Mr Puneet Kishore, Head, OEC; Mr C S Sarma, Hydrogen Project Manager, OEC; Dr D Parvatalu, Domain Expert, OEC; Dr Ashok N. Bhaskarwar, Professor, IIT-Delhi; Dr Sreedevi Upadhyayula, Associate Professor, IIT-Delhi; Dr V K Shahi, Principal Scientist, CSIR-CSMCRI; Dr Nandini Das, Senior Scientist, CSIR-CGCRI; Dr R Rahul, Post-Doctoral Fellow, IIT Delhi; Ms Divya, Senior Research Fellow, IIT-Delhi and Dr Anjan Ray, Director, Dr Anshu Nanoti, Senior Principal Scientist, Dr Subham Paul, Scientist, Dr Sunil Kumar, Senior Scientist, Dr Ankur Bordoloi, Scientist, Mr Prasenjit Ghosh, Scientist, Mr Avinash Mhetre, Scientist and Mr Pradeep Kumar, Technical Assistant, CSIR-IIP, Dehradun participated.

- **Fifth Meeting of the Task Force on Utilization of Methanol (conversion/design of methanol/DME-based engines), January 19-20, 2018**

The meeting was held under the chairmanship of Dr Anirudh Gautam, ED/SRESTHA/RDSO at CSIR-IIP, Dehradun.

Dr Avinash K Agarwal Professor/IIT Kanpur; Dr Anjan Ray, Director, CSIR-IIP, Dehradun Mr Raj Pal Singh, Director, NITI Aayog Dr Mathew Abraham, Mahindra & Mahindra; Mr Anoop Bhat ,Vice-President and Mr Ajay Kumar Maruti-Suzuki India Ltd.; Dr Prashanth Ravi, EMD (CAT/Progress Rail), Mr S K Sharma, Addl. Member Railway Board (Retd.) and Advisor, Mishra Dhatu Nigam Limited (MIDHANI); Dr Anuradha Ganesh, Cummins Indian Limited; Mr T K Chakarvarty, Director, (Business Dev.)/EMD-Progress Rail; Mr Stalin Ku. Rout, GM, Engg & BD, Progress Rail (EMD); Mr Sohanjeet Randhawa Director/Sustainability Affairs/VOLVO; Mr Vikram M Cairae Add. GM (Business Dev), Mishra Dhatu Nigam Limited (MIDHANI), Hyderabad; Mr Anand S Patil, AVP-Centre of Excellence, Mr Nikhil Sharma, IIT-Kanpur, Dr Vinay Srivastava, GROAF, Dr Vivekanand Kagdiyal, General Manager, R&D Centre, IOCL; Dr Reji Mathai, Dy. General Manager, R&D Centre, IOCL; Mr M K Shukla Senior Scientist; Mr Wittson Kamei, Senior Scientist and Mr Prasenjit Ghosh, Scientist, CSIR-IIP, Dehradun took part.

#### HRD/AWARENESS EVENTS

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

- Mr Ojasvi Sharma, Mr Ankush B Bindwal, Scientist and Mr Iranna Gogeri, Scientist, 'Induction Training Programme for the Newly-recruited Scientists', January 15-24, 2018
- Dr Manoj Srivastava, Principal Scientist and Dr O P Khatri, Senior Scientist, 'Training Programme on Management of Scientific Research for Value Creation', January 17-19, 2018
- Mr D K Pandey, Senior Technical Officer and Mr Narender Singh Negi, 'Training Programme on Information Reg. Capacity Building Programme for Officials of KRCs', January 22-24, 2018
- Dr Umesh Kumar, Scientist and Dr R K Singh, Scientist, Pranab Das, Scientist and Mr Sarvajeet Singh, Principal Technical Officer, '2<sup>nd</sup> Workshop on Evaluation of Measurement Uncertainty and ISO-17025', January 29 to February 1, 2018
- Dr Indu Shekhar, Scientist, 'Training Programme in Technical Consultations for Scientists and Technical Officers', New Delhi, February 20-23, 2018

#### 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 54 students of Classes 9<sup>th</sup> & 11<sup>th</sup> (Science), Government Intermediate College, Miyanwala, Dehradun, along with 3 faculty members, January 19, 2018
- 30 Cadets of the Rashtriya Indian Military Academy (RIMC) along with two masters, January 31, 2018
- A team of 28 students of BTech (Chemical Engineering), Rajiv Gandhi Institute of Petroleum Technology (RGIPT), Amethi, UP, along with 2 faculty members, March 22, 2018



**Students at a laboratory**

- A team of 36 students of BTech (Petroleum Engineering), Roorkee College of Engineering (RCE), Roorkee, along with 3 faculty members, March 22, 2018

**स्वच्छता के प्रति जागरूकता बढ़ाने हेतु संस्थान में कार्यरत महिला कर्मचारियों के मध्य एक मित्रतापूर्ण महिला क्रिकेट मैच, 17 फरवरी, 2018**

स्वच्छता के प्रति जागरूकता बढ़ाने हेतु संस्थान में कार्यरत महिला कर्मचारियों के मध्य आइआइपी स्टाफ क्लब के सौजन्य से एक मित्रतापूर्ण महिला क्रिकेट मैच का आयोजन, 17 फरवरी, 2018 को किया गया जिसका उद्घाटन मुख्य अतिथि श्रीमती अरुणिमा रे ने किया।

**PARTICIPATION IN THE NATIONAL SCIENCE DAY CELEBRATIONS AT THE RAJ BHAVAN, UTTARAKHAND, FEBRUARY 28, 2018**

On the initiative of Hon'ble Governor of Uttarakhand, Dr K K Paul, the National Science Day celebrations were held on 28<sup>th</sup> February at the Raj Bhavan, Uttarakhand. Dr Anil Kakodkar, Former Chairman, Atomic Energy Commission, GOI, delivered a popular lecture on 'India's energy requirements and the role of atomic energy'. An exhibition was also organized on the day so that various Departments/Universities/NGOs etc could showcase their capabilities.

The Institute participated in the exhibition by putting up selected posters and exhibits. Dr Anjan Ray, Director, Dr D C Pandey, Principal Technical Officer, Dr Soumen Dasgupta, Senior Scientist, Mr Pankaj Arya, Scientist, Mr Prasenjit Ghosh, Scientist, Mr Aman Bhosle, JRF and Mr Vikram Singh Rawat, Assistant Section Officer, represented the Institute at the exhibition.

**PARTICIPATION IN THE 105<sup>TH</sup> INDIAN SCIENCE CONGRESS, MANIPUR CENTRAL UNIVERSITY, IMPHAL, MARCH 16-20, 2018**

The 105<sup>th</sup> Indian Science Congress (ISC) was inaugurated by the Hon'ble Prime Minister of India, Shri Narendra Modi. The Institute participated in an exhibition during the ISC as a part of the CSIR Team by putting up posters and exhibits. Dr D C Pandey, Principal Technical Officer, Dr B R Nautiyal, Principal Technical Officer and Mr L Robindro, Senior Scientist, represented the Institute. The CSIR Stall received the 'Best Stall' Award.

**NATIONAL VOTERS' DAY, JANUARY 25, 2018**

On the instructions of the Election Commission of India, the National Voters' Day was observed on 25<sup>th</sup> January, 2018 with a National Voters' Day Pledge administered by Dr Anjan Ray, Director on all the employees of the Institute

**HONOURS & AWARDS**

**CSIR-IIP TECHNOLOGY BAGS GOVERNOR'S INNOVATOR AWARD**

The stall put up by the Institute during the National Science Day Celebrations at Raj Bhavan, Uttarakhand on February 28, 2018 was selected as the Best Stall among all others. The focus of appreciation was the innovative technology developed by the Institute for 'Conversion of Waste Plastics to Value-Added Products' which won the Governor's Innovator Award, and will be awarded on a later date.

- Mr KDP Lakshmee Kumar, Technical Assistant, GTL Area/Conversions & Catalysis Division got the best poster presentation award in the '23<sup>rd</sup> National Symposium on Catalysis (CATSYMP-23)', Bengaluru, for the paper entitled 'The effect of acidity on Cu-Zn hybrid catalyst for direct synthesis of Dimethyl ether (DME) from Syngas', January 17-19, 2018
- Mr Pradeep Kumar, Technical Assistant, received the Best Poster Award in the 'International Conference on Advances in Analytical Sciences (ICAAS)', March 15-17, 2018 for his poster on 'Synthesis and characterisation of O-carboxymethylchitosan and its application for CO<sub>2</sub> absorption', on behalf of himself & his team including Akansha Verma, Dr Ankush Bindwal, Scientist, Dr R K Singh, Scientist, Dr Subham Paul, Scientist, all from the CSIR-IIP, Dehradun

*Congratulations!*

**PhD/D Phil DEGREE AWARDS**

- Ms Kritika Kohli was awarded Ph D degree for her thesis entitled 'Deactivation Study of Residue Hydroprocessing Catalysts', done under the supervision of Dr S K Maity, by the Academy of Scientific & Innovative Research (AcSIR), January 19, 2018
- Ms Sheetal Bandhu was awarded Ph D degree for her thesis entitled 'Genetic Modification of an Oleaginous Microorganism to Enhance Biofuel Production' done under the supervision of Dr D K Adhikari, and Dr Debashish Ghosh, by the Academy of Scientific & Innovative Research (AcSIR), March 7, 2018
- Ms Vineeta Panwar was awarded Ph D degree for her thesis entitled 'Organic-Inorganic Hybrid materials as Heterogeneous Catalysts for Organic Synthesis' done under the supervision of Dr S S Ray and Dr Suman L Jain, by the Academy of Scientific & Innovative Research (AcSIR), March 12, 2018

*Congratulations!*

**गणतंत्र दिवस समारोह, 26 जनवरी, 2018**

26 जनवरी, 2018 को संस्थान में 69वां भारतीय गणतंत्र दिवस बड़ी धूम-धाम से मनाया गया।

इस अवसर पर संस्थान के कर्मचारीगण, केंद्रीय विद्यालय, आइ आइ पी के विद्यार्थी व सुरक्षा-स्टाफ एकत्रित हुए। मुख्य अतिथि तथा निदेशक, सीएसआइआर-आइआपी, डॉ अंजन रे के द्वारा पूर्व महानिदेशक, सीएसआइआर तथा पूर्व निदेशक, सीएसआइआर-आइआइपी डॉ एम ओ गर्ग, विशिष्ट अतिथि के रूप में आगमन पर कार्यक्रम का विधिवत आरंभ हुआ। मुख्य अतिथि महोदय ने सलामी गारद का निरीक्षण कर ध्वजारोहण





**डॉ अंजन रे सलामी लेते हुए**

किया। राष्ट्रगान के उपरांत सुरक्षा कर्मी व केंद्रीय विद्यालयों के छात्रों ने परंपरानुसार मार्च पास्ट किया।

संस्थान के प्रेक्षागृह में अपने संबोधन में डॉ रे ने संस्थान के महत्व को रेखांकित करते हुए कहा कि भापेसं देश के कल-पुर्जे चलाता है। विशिष्ट अतिथि के रूप में उपस्थित डॉ मधुकर ओंकारनाथ गर्ग, पूर्व निदेशक, सीएसआइआर-आइआइपी ने प्रारंभ में भारतीय प्रौद्योगिकी संस्थान, मुंबई और दिसंबर, 2017 के बाद से रिलाइएंस इंडस्ट्रीज में अध्यक्ष (परिष्करण एवं पेट्रोलियम) के रूप में अपने अनुभवों को साझा किया और बिजली से



**केंद्रीय विद्यालय, आइआइपी के विद्यार्थियों द्वारा सांस्कृतिक प्रस्तुति**

गति, गंधक में आपरिवर्तन, सिनगैस, मूल्य-वर्द्धन और ऊर्जा-दक्षता के बारे में बात की। इसके पश्चात केंद्रीय विद्यालय के छात्रों द्वारा विभिन्न लोकनृत्य व देश-भक्ति के कार्यक्रम प्रस्तुत किए गए।

#### HEALTH CAMPS

##### • Free Medical Health Check-up Camp, February 15, 2018

A free Medical Health Check-up Camp was organised on February 15, 2018 by the **Kanishk Super Speciality Hospital**, Dehradun. Areas covered were Gynaecology & Obstetrics, Orthopaedics and General Medicine for free consultation, free Hb and Sugar Test, BMD Test.

#### हमारा क्रीड़ा पक्ष / OUR SPORTING SIDE

##### • 49वें शांति स्वरूप भटनागर स्मृति टूर्नामेंट (आउटडोअर्स)- जोनल (25-28 जनवरी, 2018) में प्रतिभागिता

सीएसआइआर-राष्ट्रीय रासायनिक प्रयोगशाला (CSIR-NCL), पुणे में 25-28 जनवरी, 2018 को आयोजित 49वें शांति स्वरूप भटनागर स्मृति टूर्नामेंट (आउटडोअर्स) - जोनल में संस्थान की क्रिकेट व वॉलीबॉल टीमों ने सीएसआइआर-केंद्रीय वैज्ञानिक उपकरण संस्थान (CSIR-CSIO), चण्डीगढ़ में आयोजित की जाने वाली अंतिम प्रतिस्पर्धा में स्थान बनाया। सीएसआइआर-एनसीएल में आयोजित प्रतिस्पर्धा में भाग लेने वाले

खिलाड़ियों के नाम इस प्रकार हैं:

**क्रिकेट** : सर्वश्री जसवंत राय, परवेज आलम, प्रदीप पँवार, सुनील पाठक, हेमंत तिवाड़ी, प्रसेनजीत मित्र, पंकज आर्य, धर्मेन्द्र पुंडीर, आदेश सेठ, सतीश चंद, अरविंद खंडूड़ी, मनमोहन सिंह, शिवराम, हरि प्रकाश एवं नवीन मौर्य।

**वॉलीबॉल** : सर्वश्री देवेन्द्र बटोला, राजीव पँवार, राजेन्द्र बडोला, बुद्धि वल्लभ डिमरी, फरीद अहमद, मनोज कुमार, सुदामा सिंह बिष्ट, राजबीर नेगी एवं शिव सिंह रावत।

*बधाइयाँ!*

##### • 49वें शांति स्वरूप भटनागर स्मृति टूर्नामेंट (आउटडोअर्स)- अंतिम स्पर्धा (7-10 मार्च, 2018) में प्रतिभागिता

सीएसआइआर-केंद्रीय वैज्ञानिक उपकरण संस्थान (CSIR-CSIO), चण्डीगढ़ में 7-10 मार्च, 2018 के दौरान आयोजित 49वें शांति स्वरूप भटनागर स्मृति टूर्नामेंट (आउटडोअर्स) में संस्थान की वॉलीबॉल टीम अंतिम मैच में सीएसआइआर-राष्ट्रीय वांतरिक्ष प्रयोगशालाएं, बंगलूरु को



**विजेता दल महानिदेशक, सीएसआइआर तथा प्रशासन नियंत्रक, आइआइपी की उपस्थिति में ट्राफी के साथ**

3-1 से हराकर विजेता रही। चण्डीगढ़ में आयोजित प्रतिस्पर्धा में भाग लेने वाले खिलाड़ियों के नाम इस प्रकार हैं: सर्वश्री देवेन्द्र बटोला, राजीव पँवार, राजेन्द्र बडोला, बुद्धि वल्लभ डिमरी, फरीद अहमद, मनोज कुमार, राजबीर नेगी एवं शिव सिंह रावत।

*बधाइयाँ!*

##### Participation in the 'G S Sidhu Memorial Table Tennis Tournament' and 'A P Mitra Memorial Badminton Tournament, CSIR-NISCAIR, New Delhi, March 22-24, 2018

From this Institute, Mr S C Bhatt, PS and Dr Soumen Dasgupta, Senior Scientist, represented the CSIR-National Team in the Table Tennis event and clinched the Team Event Trophy.

#### राजभाषा-संबंधी गतिविधियां

##### • 'विश्व वानिकी दिवस' पर व्याख्यान का आयोजन, 21 मार्च, 2018

राजभाषा अनुभाग द्वारा 21 मार्च, 2018 को 'विश्व वानिकी दिवस' के अवसर पर 'मानव का वन्य-जंतुओं से टकराव: कारण और निवारण' विषय पर एक व्याख्यान का आयोजन किया गया, जिसके वक्ता थे: श्री नरेंद्र उपाध्याय (राज्य वन सेवा), पूर्व उप वन संरक्षक, उत्तर प्रदेश। श्री नरेंद्र उपाध्याय का स्वागत श्री जसवंत राय, प्रशासन नियंत्रक ने किया।

कार्यक्रम का संचालन करते हुए श्री एम सी रतूड़ी, वरिष्ठ हिंदी अधिकारी ने श्री उपाध्याय का परिचय दिया और बताया कि उन्होंने संयुक्त राष्ट्र संघ के खाद्य एवं कृषि संगठन की अध्येतावृत्ति भी प्राप्त कर दावाग्नि शमन का प्रशिक्षण संयुक्त राज्य अमेरिका में लिया है। श्री उपाध्याय वन्यजीव छायांकन में विशेष रुचि रखते हैं।



श्री नरेंद्र उपाध्याय व्याख्यान देते हुए

श्री उपाध्याय ने कथित विषय पर अपनी पावर प्वाइंट प्रस्तुति प्रारंभ करने से पूर्व इस दिवस व विषय का परिचय दिया और कहा कि 21 मार्च को 'विश्व वन दिवस' भी कहा जाता है। श्री उपाध्याय ने मानव और वन्य-जंतुओं के टकराव का विषय उठाते हुए बताया कि उत्तराखंड में तेंदुए से यह टकराव बहुत अधिक है, जबकि शहरों में बहुत कम। यह टकराव क्षेत्रानुसार वितरित है, जैसे उत्तराखंड के मैदानी क्षेत्रों से लगे क्षेत्रों में जंगली हाथियों से टकराव जो फसलों को क्षति पहुंचाते हैं। श्री उपाध्याय का मानना था कि इस टकराव का कारण मानव ही है। क्योंकि जंगली जानवर नहीं, बल्कि मानव उनकी सीमा में प्रवेश कर रहा है। टकराव के कारकों में हैं, जंगली जानवरों के आवास का विखंडन। श्री उपाध्याय ने बताया कि मानव और वन्य-जंतुओं का टकराव एक वैश्विक परिघटना है। तेंदुए से टकराव अधिक होने के कई कारण हैं, जैसे वन्य जानवरों की तुलना में इनका घनत्व अधिक है, यह हर प्रकार की परिस्थिति से आसानी से अनुकूलन कर लेता है, आदि। टकराव के अन्य कारक हैं, जानकारी का अभाव व जानवर के स्थल पर अचानक मानव का सामने आ जाना। टकराव के परिणाम, आर्थिक व मानव जीवन की हानि और जैव-विविधता का प्रभावित होना है।

इस टकराव के समाधानों पर बात करते हुए श्री उपाध्याय ने बताया कि पर्यावरण व वन मंत्रालय इस विषय पर लगातार कार्य कर रहा है। इसमें दोषी जानवरों का पकड़ा जाना, उन्हें दूर किसी दूसरे स्थल पर ले जाना, विशेष रूप से डिजाइन किए गए केंद्रों में उनका पुनर्वास, आपात सहायता दलों का गठन और टकराव को कम करने के लिए जागरूकता कार्यक्रम आदि सम्मिलित हैं। स्थानीय समितियों को इसमें सम्मिलित करना होगा, दोषी जानवरों से प्रभावित परिवारों को उचित मुआवजा देना होगा और पूरे समाज को भी जागरूकता के माध्यम से विश्वास में लेना होगा। मानव की प्रगति के चलते यह टकराव अवश्यंभावी और अपरिहार्य है। पर सुझाए गए उपायों से इसमें कमी अवश्य लाई जा सकती है। श्री उपाध्याय ने श्रोताओं के प्रश्नों का समाधान भी किया।

### संस्थान-परिवार के समाचार

#### (क) पदोन्नतियाँ

वरिष्ठ आशुलिपिक से वरिष्ठ आशुलिपिक (एमएसीपी)

श्रीमती पद्मा कुमारी एस. 04.07.2015

गुप सी (एम टी एस) से गुप सी (एम टी एस)(एमएसीपी)

- श्री राजेश कुमार 13.06.2017
- श्री मुकेश कुमार 12.03.2018
- श्री चन्दर सिंह 12.03.2018
- श्री किशोर कुमार 12.03.2018
- श्री सुरेन्द्र कुमार 12.03.2018
- श्री राजेश कुमार 12.03.2018
- श्री अरविन्द खन्डूड़ी 12.03.2018

बधाइयाँ!

#### (ख) संस्थान-परिवार से विदाई

(i) अधिवर्षिता पर / सेवा-विस्तारोपरान्त सेवा-निवृत्ति

31 जनवरी, 2018

श्रीमती गीता क्षेत्री, निजी सचिव

28 फरवरी, 2018

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(ii) स्वैच्छिक सेवानिवृत्ति

- डॉ दिनेश चन्द्र चमोला, वरिष्ठ हिंदी अधिकारी (एसजी) 31.01.2018

(iii) संस्थान-परिवार से त्यागपत्र

- श्री वी सीलाम्बरसन, तकनीशियन (1) 28.02.2018

भावभीनी विदाई!

### वित्तीय वर्ष 2017-2018 के दौरान बाहरी नकदी प्रवाह / ECF during the Financial Year 2017-2018

(लाख रूपयों में / Rs. in lakhs)

Category	Govt.	Private Industries	PSE's/ Refineries	Foreign Companies	Total
Sponsored R&D	4.75096	233.11603	1675.88583	-	1913.75282
Grant-in-Aid R&D	581.10684	-	-	-	581.10684
Collaborative/ Co-operative R&D	4.63936	-	45.88500	12.16719	62.69155
R&D Consultancy	219.64003	-	-	-	219.64003
Technical Services & Misc.	2.86300	15.61340	292.77043	-	311.246883
Premia/Royalty	-	8.57147	-	-	8.57147
<b>Total</b>	<b>813.00019</b>	<b>257.30090</b>	<b>2014.54126</b>	<b>12.16719</b>	<b>3097.00954</b>

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