

**MIRANDA HOUSE
UNIVERSITY OF DELHI
DBT Star College Project**

Outreach activities conducted

- **Symposium on Empowering Women in Chemistry 12 February 2019**

A Symposium on *Empowering Women in Chemistry* as a part of the Centenary Celebration of the International Union of Pure and Applied Chemistry (IUPAC) was organized on 12 February 2019. The symposium was held under the aegis of DSKC and was sponsored by Department of Science and Technology (DST), Defence Research and Development Organisation (DRDO) and Department of Biotechnology (DBT), Government of India. Many organisations all over the world participated in *IUPAC 100* celebration including Miranda House as a leading Partner Institution from India. The first event of the day was a *Global Women's Breakfast*, a global networking event launched in real time around the world, starting in New Zealand, with the final events occurring in the Pacific Region. Miranda House was privileged to host a Panel Discussion as the Breakfast Event, with eminent invited panellists Padma Bhushan Dr. Manju Sharma, Professor Rita Kakkar, Professor Ruchi Anand and Professor Shailja Singh. The women scientists on the Panel had fruitful interaction with the enthusiastic audience. Four of the panellists later gave talks related to their own fields of research.

Three lead-up students' competitions for IUPAC 100 were organised by *Rasayanika*, the Miranda House Chemical Society on 10 and 11 January 2019 with an objective of bringing together creative young minds. The first lead-up event held on 10 January 2019 was *Eureka: The Inter-College Science Paper Presentation and Poster Presentation* competition. The event saw participation from different colleges on given topics like The Periodic Table over the Years, Life and Work of an Extraordinary Woman Chemist, Frontiers of Chemical Research etc. The papers and posters were highly appreciated and prizes were given. The other two events were *Prayog* and *SciQuiz* which were held on 11 January. *Prayog* was the lab work competition while *SciQuiz* was a film-based quiz. In keeping with the theme of Empowering Women, the participants of *SciQuiz* watched a short documentary film based on the life of Rosalind Franklin, one of the contributors to the elucidation of DNA structure and then took a quiz based on it. The event proved to be very successful with good participation.

- **Science Conclave 2019 16-18 January 2019**

The Science Conclave 2019 was a Conclave for undergraduate and postgraduate INSPIRE scholars, studying in various institutions of Delhi, held in Miranda House from 16 to 18 January 2019. The Department of Science and Technology-sponsored event was conducted under the aegis of the DS Kothari Centre for Research and Innovation in Science Education (DSKC), Miranda House. Spread over three days, the Conclave allowed the students to listen to and interact with a number of eminent scientists from all over India. Students also got an opportunity to prepare and present scientific posters which were on display during the Conclave. A distinguished panel of judges selected the best posters for cash awards and certificates.

The inaugural talk was delivered by Dr. Ashutosh Sharma Secretary to Govt. of India, Department of Science and Technology. Other speakers on the first day were Dr. Nandini Chatterjee Singh, Programme Specialist – Science of Learning UNESCO Mahatma Gandhi Institute of Education for Peace (MGIEP); Dr. Venkat N. Ramani Entrepreneur, Plasma and Vacuum Technologies, Ahmedabad; and Dr. Mylswamy Annadurai, Vice President, Tami Nadu State Council for Science and Technology.

The speakers on the second day were Dr. Trilochan Mohapatra Secretary, Department of Agricultural Research and Education, and Director General, Indian Council for Agricultural Research; Dr. Partha Pratim Majumder, Distinguished Professor and Founder, National Institute of Biomedical Genomics, Kolkata; Dr. G. Ravindra Kumar, Department of Nuclear and Atomic Physics, Tata Institute of Fundamental Research, Mumbai; and Dr. Dalip Singh Mehta Department of Physics, Indian Institute of Technology, Delhi. On both Day 1 and Day 2, there were Interactive Poster Sessions scheduled where student participants who had put scientific posters on display got an opportunity to explain their posters to the judges.

On the third day of the Conclave, participants got the opportunity to attend talks by Dr. Balram Bhargava, Secretary Department of Health Research and Director General, Indian Council of Medical Research; Dr. Tuhin Bhowmick, Cofounder, Pandorum Technologies Pvt. Ltd.; Dr. Swati Patankar, Department Biosciences and Bioengineering, IIT, Mumbai and Dr. Dipankar Bhattacharya, Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune. Dr. Amlesh K Mukhopadhyay, Adviser, Science and Engineering Research Council (SERC) Department of Science and Technology addressed the students and emphasised the importance of the INSPIRE programme.

The 450 participants enjoyed every minute of the enriching experience and the Conclave was a big success.

- **Conclave on Biodiversity for Every One's Life 31 August 2018**

Miranda House, University of Delhi and Institute of Bioresources and Sustainable Development (IBSD), Manipur jointly organised *Conclave on Biodiversity for Every One's Life* on 31 August 2018 at Miranda House, University of Delhi. The aim of the Biodiversity Conclave was to explore Biodiversity from a multifaceted perspective, from scientific understanding to its conservation and expansion. The Biodiversity Conclave brought together students, faculty, researchers and concerned citizens from across the city of Delhi. All the sessions were highly interactive. After a brief introduction to the theme by eminent invited speakers, the discussion was thrown open. Several lead up events such as quiz, photography, art, video, poster making etc. were being organized to provide a participative and creative forum to students to express themselves. In addition, several exhibitions were organized that included Innovative Products Developed by HESCO (Himalayan Environmental Studies and Conservation Organization); *Rainbow in Flight*, A Gallery of photographs of Birds on Banks of Yamuna by Shruti Sharma; *Art Installations* by Adwitiya, the Fine Arts Society of Miranda House; *Through the Lens* by Snapshots, the Photography Society of Miranda House. The inaugural address was given by Chief Guest, Prof. K. Vijayraghavan, Principal Scientific Advisor, Govt. of India. The winners of the various lead up Competitive events were also felicitated in the inaugural session. Eminent speakers from diverse arenas of life participate in the event such as Prof. Ricky Kej, Indian Music Composer and Conservationist, National Institute of Advanced Studies (NIAS), Bengaluru; Mr. Raghu Rai, Renowned Photographer, Prof. C. R. Babu, Professor Emeritus, Centre for Environmental Management of Degraded Ecosystems (CEMDE), University of Delhi; Prof. L.S. Shashidhara (IISER, Pune), Prof. Ramana Athreya, Astronomer & Ecologist, IISER, Pune; Dr. Anil Joshi, Himalayan Environmental Studies and Conservation Organization (HESCO), Dehradun; Prof. Mahesh Rangarajan, Environmental Studies & History; and Dean of Academic Affairs, Ashoka University; Mr. Abani Kumar Sahu, Senior Advocate, Supreme Court of India; Prof. Dinabandhu Sahoo, Director, Institute of Bioresources and Sustainable Development, Manipur; Mr. Chetan Chauhan, Senior Associate Editor, Hindustan Times; Dr. Rahul Ram, Environmentalist, Social Activist and Musician, Indian Ocean. The Conclave was successful in sensitizing and engaging everyone to think about Biodiversity and its significance in their individual lives and surroundings.

- **Workshop on Fundamentals and Advanced Concepts of Flow Cytometry 2 - 3 August 2018**

The workshop was attended by B. Sc. (H) final year students and research scholars from DSKC, Miranda House, Department of Zoology, Delhi University, Vallabh bhai Patel Chest research institute and Ambedkar Centre for Biomedical Research Institute. The objective of the workshop was to introduce our undergraduate students to basic and advanced concepts of flow cytometry and its applications in the field of immunology and

cell biology. Advanced modules were specially designed for research scholars to make them learn flowcytometry data analysis, analysis and presentation for multicolorimmunophenotyping, DNA Cell Cycle, Apoptosis, etc. Further they learnt fine details of flowcytometry such as compensation and data visualization, experimental and gating controls (FMO, Isotypes, Internal, Biological etc and troubleshooting of Flow Data. The workshop was one of its kind initiatives, where researchers learnt to change their flow data into publishable results.

- **VIGYANshala – Communicate and Inspire Workshop 5 February 2018**

Our Alumnae Dr. Darshana Joshi from University of Cambridge, UK along with Dr. Aditya Sadhanala and Dr. Robin Lamboll from the same University conducted the workshop. The workshop was on the use of basic material science in day to day life. About 40 students from Physics department participated in the workshop and interacted with the speakers.

- **National Symposium Cum Faculty Development programme on Genome Editing: Tool and Applications 15-22 January 2018**

Department of Zoology organized this symposium with the main objective as to get a detailed insight into the world of Genome Editing which is an important mechanism to make precise changes in the genome of living cells and has many applications in medicine and agriculture using three main tools to targeted gene modification- zinc-finger nucleases (ZFNs) and transcription- activator like effector nucleases (TALENs) and CRISPR (Clustered Regularly interspaced short Palindromic Repeats) and CRISPR-associated (Cas) genes. The knowledge of these latest tools and their application is essential for life sciences faculty teaching at various colleges in India. The event was divided into various sessions like: Genome Editing Tools: siRNA, ZFN, TALENS, CRISPR/Cas; Genome Editing Applications in Medicine and Agriculture and Ethical and Regulatory issues in Genome Editing. Informative talk by experts of this field from various National Research Labs like IIT Delhi, IGIB Delhi, THISTI Faridabad, CCMB Hyderabad, NII Delhi, IMTECH Chandigarh, ACRB Delhi followed by extensive review of literature by participants and demonstrations by suppliers like Thermo Fisher and BD Biosciences provided the right exposure to biotechnology and genetic engineering.

- **Science Conclave held from 18 to 20 January 2018**

About 300 undergraduate science students and 50 science teachers from 20 colleges in Delhi participated in the science conclave. The program was inaugurated by the Secretary, DST and gave the inaugural address. Many eminent scientists across disciplines presented popular talks for undergraduate students.

- **Inspire Internship Programme for school students held from 18 to 22 December 2017**

The program was attended by about 204 students from 21 schools and 56 school teachers. The program is divided into two parts where there were motivational talks in the first half followed by 15 workshop sessions in all streams of science including physics, chemistry, botany, zoology, mathematics and geography. One of the highlights was the stage science show organised by the National Science Center. About 100 undergraduate student mentors and 30 faculty members organized this week-long event.

- **Immunoinformatics for Rational Vaccine Design” 18-22 September 2017**

A five days student workshop on "Immunoinformatics for Rational Vaccine Design” was organized from 18-22 September 2017 under DBT Star College Scheme. The workshop was attended by undergraduate students and research scholars from across the Delhi University colleges and departments. The objective of the workshop was to introduce college students about applications of various Bioinformatics techniques in the field of immunology and enhancement of conceptual knowledge of upcoming research field Immunoinformatics. The workshop was designed to give hands on experience of various computational tools for vaccine design and interactive lectures by scientist working in the field of Computational Biology and vaccine development.

- **Understanding our Environment: Human Interference 18 August 2017**

One day workshop on Understanding our Environment: Human Interference was conducted by Department of Zoology under the aegis of DBT Star College Scheme, Miranda House on August 18, 2017. The workshop was well attended by forty three students across various disciplines and Universities in and around Delhi. The workshop aimed to introduce and motivate students about the stressed environment and how interaction among different organisms of various strata impact human health. The focus of the workshop was on developing an understanding of the contemporary research on xenobiotic degradation and how they can contribute to Swachh and Swasth Bharat Abhiyan.

- **Summer Workshop for Undergraduate Science Students (5 June to 15 July 2017)**

Flavor of Research: Investigative Projects in Multidisciplinary Contexts was organized at DSKC. Nearly 120 science undergraduate students from across different colleges in the university participated in the workshop and carried out projects in interdisciplinary fields. These students serve as mentors for the Inspire internship program held every year in the college. As part of DSKC activities at the Physics Department, 3 workshops were conducted on the application of 3-D printers; 1 workshop was conducted on Introduction to IoT Technology and one workshop was conducted on robotics. Two teams participated

in the e-Yantra Robotics competition and one team got a certificate for finishing the assigned task in time also.

- **Symposium on Art of Grant Writing 5-6 January 2017**

A two days symposium was organized by Department of Zoology from 5-6 January 2017. The symposium was designed specifically for faculty teaching at undergraduate levels and research scholars. It was attended by 35 faculty and research scholars from various science colleges of University of Delhi. The talks were on “Prospecting of research proposals”, “Identifying the Research Topic”, “Essentials of Grant Writing”, “Information Retrieval and Bibliography Management”, “Roles and Responsibilities of Ethics Committee”, “Scientific writing”, “How to Write a Successful Grant Application?” and “Basic Statistical Tools for Research” The objective of this symposium was to empower the faculty to write for research grants to various funding agencies and to enhance their skill to write research papers.

- **International Workshop on “The role of MHC Complex in Biology and Medicine” 16 March 2016**

Under DBT Star College project, one day international workshop on “The role of MHC Complex in Biology and Medicine” was organized by Department of Zoology on March 16, 2016. This workshop was designed to introduce students at undergraduate level to the field of Human Immunogenetics, a branch of genetics research focused on genes involved in the immune response. The workshop was attended by twenty nine undergraduate students from department of Zoology and Life Sciences of Miranda House and various science colleges of University of Delhi.