NIUS Teachers' Workshop on
Enhancing Learning in Experimental Chemistry
HBCSE, TIFR
May 24-27, 2022

As a part of National Initiative on Undergraduate Science (NIUS) programme, an on-campus teachers development workshop was organized by Homi Bhabha Centre for Science Education (HBCSE-TIFR) from May 24-27, 2022. A total of 9 teachers from different parts of India attended this workshop.

The first three days of the workshop included working on two lab experiments in groups, (i) synthesis of m-dinitrobenzene from nitrobenzene and (ii) determination of rate constant of acid-catalysed hydrolysis of ethyl acetate. The experiments were chosen from laboratory manuals of the under-graduate syllabi and were modified to enhance the learning of students by developing pre-lab and post-lab questions. There were rich discussions on experimental procedures and conceptual understanding emerging from these.

On the fourth day, another short practical session, (iii) functional group/s in aroma related molecules: qualitative tests to identify these molecules was conducted with the teachers. This experiment was adapted from the 48th International Chemistry Olympiad held in Tbilisi, Georgia in 2016.* After the lab, there was a detailed discussion session, on how to identify the aromatic molecule based on the functional group test. This experiment is context based since the students are likely to be familiar with a few of the aromas. Thus, they will be able to relate some common aromas with the structure of the compound specially the functional group(s) present.

Post-lunch, a session was conducted on quality learning resources for online teaching of chemistry compiled on the HBCSE chemistry education website (https://chem.hbcse.tifr.res.in/). At the end of the programme, an open discussion and feedback session was conducted. Overall, the sessions at the workshop highlighted the techniques for enhancing teaching-learning process and the importance of pre- and post-lab in the laboratory practical at the under-graduate level.

*48th IChO, Georgia, 2016: http://www.icho2016.chemistry.ge/icho48_problems.php.