

Chemistry Olympiad Exposure Camp
Homi Bhabha Centre for Science Education – TIFR
November 09 – 12, 2022

As a part of Indian National Chemistry Olympiad Programme (INChO), the Olympiad Exposure Camp 2022 for chemistry teachers teaching at secondary and higher secondary level was organized by HBCSE from Nov 09 – 12, 2022. A total of 24 teachers from different parts of India attended this camp.

The camp consisted of theoretical and experimental sessions. These sessions included

- (a) Problem solving and discussion of past INChO problems along with pedagogical reflections on the problems.
- (b) Experimental problems along with pre-lab and post-lab questions.
- (c) Discussion on misconceptions in chemistry.
- (d) Planning of an experiment with given objectives.
- (e) Showcasing Chemistry education resources developed by HBCSE and curated content for teaching and learning of chemistry: <https://chem.hbcse.tifr.res.in/resources/>.

The theoretical problem solving sessions in the camp involved discussion and solving two problems from past Indian National Chemistry Olympiad (INChO) examinations. (a) Electrochemical processes in lead acid batteries: INChO 2018 and (b) Keto-Enol Tautomerism: Kinetics and Thermodynamics: INChO 2018.

The experimental problems discussed in the camp included (a) analysis of an abrasive sample for CO_3^{2-} and HPO_4^{2-} content which was adapted from the 39th IChO (Russia, 2007); (b) synthesis of dibenzalacetone, a common ingredient of sunscreen lotions, and chromatographic testing of purity of product; (c) comparison of ligand field strength in coordination compounds of iron through substitution reactions; and (d) designing an experiment to identify better catalyst for decomposition of hydrogen peroxide. The primary aim of sessions was to conduct discussions on design of experiments, key concepts and understanding the procedural steps. Teachers found the experiments useful and doable with their lab set-up.

Misconceptions in chemistry session was a forum focused on exchange of views by the teachers on acid-base equilibria related concepts. Using different representations of molecules and related data, different ways to “explain” properties of those compounds were discussed. Teaching learning resources to discuss and address misconceptions in different domains of chemistry were also discussed.

In addition, information about available and reliable resources on chemistry education website and ways to use them in different classroom situations was discussed.

