

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI
DEPARTMENT OF CHEMISTRY

Title (of online activity /program): National Webinar on “Molecular Architecture and Landscape through Spectroscopy: Introductory Lectures”

Participants (number): 380

Resource Person/s: Dr. Mangala Sunder Krishnan, Professor and Head Department of Chemistry, IIT Madras

Date/s and Time: 4th – 6th June 2020 | 11:30 a.m. to 1:00 p.m.

Brief Note:

The Department of Chemistry, Stella Maris College (Autonomous) conducted a three day National Webinar on “Molecular Architecture and Landscaping through Spectroscopy – Introductory Lectures” in collaboration with the Department of Chemistry, IIT Madras from 04 to 06 June 2020. The session timings were 11:30 a.m. to 1:00 p.m. The resource person was Professor Mangala Sunder Krishnan, Head, Department of Chemistry, IIT Madras. More than 900 participants had registered for the event. The eventual turnout was 380. The first day of the webinar started with Professor Krishnan discussing the fundamentals of Spectroscopy before moving on to the oscillations of electrical and magnetic properties the two independent phenomena produced when electromagnetic radiation interacts with the matter. The session was of great benefit to faculty and students alike and it ended with question and answer session in which Professor Krishnan answered all the questions asked with clear cut and well thought out answers. Day 2 of the webinar started off with IR spectroscopy followed by Raman Spectroscopy. He discussed the normal modes of vibrations of polyatomic molecules and rotational spectra. The "Avogadro" software assisted animation shed light on the normal modes of the simple polyatomic molecule like benzene, and the professor explained various vibrational frequencies that it possesses, expounded that there can be more than one degenerate vibrational frequency, differing in their vibrational mode, in the direction of its vibration. Furthermore, he explained the necessity of a dipole moment in a molecule for it to be IR active, hinting on the complementary mode rule, which said that molecules with the centre of symmetry will be either IR active or Raman active exclusively. Using spherical harmonics, he

further delineated the necessity of permanent dipole moment for a molecule to be IR active. Day 2 of the webinar also ended with a question and answer session. The topic covered for Day 3 of the webinar was Magnetic Resonance spectroscopy. Here, the professor explained the fundamentals of NMR in a very simple but effectively which was much appreciated by all the participants. Day 3 ended with another the summary of the webinar being read and the vote of thanks being proposed. All the participants submitted the feedback and the certificates were sent to their email addresses individually.

Feedback: The feedback from the participants was most positive and encouraging. Almost all of them found the sessions extremely helpful and strongly agreed that the subject matter relevant to their area of study.