REPORT

Science Academies’ Lecture workshop on “Spectroscopy: Applications in Chemistry” was organized by the Department of Chemistry, MCM DAV College for Women, in association with Indian Academy of Sciences, Bangalore, Indian National Science Academy, New Delhi and National Academy of Sciences, Allahabad on 22\textsuperscript{nd} and 23\textsuperscript{rd} August, 2014.

Spectroscopy is an immense tool in chemistry. This workshop intended to provide a platform for undergraduate and postgraduate students to understand several aspects of spectroscopy. Speakers from renowned institutes were invited to deliver lectures on different topics of spectroscopy, like - vibrational, electronic, Laser and NMR. Detailed discussions on the concepts definitely helped the students understand and appreciate the subject in a broad sense. This workshop had enthusiastic participation of the undergraduate and postgraduate students from nearby colleges. The lectures focused on the applications and recent trends in spectroscopy in different areas of chemistry. The Light of Knowledge is an often used phrase, but it is particularly appropriate in reference to spectroscopy. Eminent people from various fields of spectroscopy shared their experiences on this vast field.

Professor N. Sathyamurthy, Director, IISER Mohali and Convener of the Lecture workshop enlightened the audience with “Structure and dynamics: a spectroscopic view.” He shed light on the importance of Transition State a highly reactive intermediate state corresponding to the highest Potential Energy along the reaction co-ordinate.
Prof. E. Arunan, Professor, Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore delivered very interesting lectures on Microwave spectroscopy and explained the audience about the basic phenomena of why do molecules absorb or emit light?

Professor K. S. Viswanathan, Professor (Chemistry) & Dean (Students) IISER Mohali explained the basics of Infra-red spectroscopy and shared his work experiences of it. Dr. Viswanathan explained that IR spectroscopy is the spectroscopy that deals with the infrared region of the electromagnetic spectrum, that is light with a longer wavelength and lower frequency than visible light. In his second lecture he spoke on Matrix Isolation Infrared Spectroscopy and gave practical knowledge about the research activities in their lab.

Students were highly motivated and impressed to hear Professor N. D. Kurur from IIT Delhi who spoke on NMR spectroscopy. He very enthusiastically explained that by studying the peaks of nuclear magnetic resonance spectra, chemists can determine the structure of many compounds.

Last but not the least we had a lecture by Dr. K. P. Singh, Assistant Professor (Physics), IISER, Mohali who spoke on Femtosecond and Attosecond spectroscopy. He enlightened the audience on understanding of the emerging phenomena when atomic/molecular systems interact with ultrafast light pulses and to explore new quantum control scenarios of the fundamental photo-processes such as ionization, dissociation, electron localization etc.

Science offers the opportunity for unbridled expansion of our knowledge. Scientists and intellects from various fields gathered to discuss and strengthen some core issues and generate awareness to the mass audience.
Science Academies’ Lecture workshop on
“Spectroscopy: Applications in Chemistry”

Convenor: Professor N. Sathyamurthy, Director, IISER Mohali

Host Institute: MCM DAV College for Women, Sector-36, Chandigarh

Coordinator: Dr. Sagarika Dev, MCM DAV College for Women, Chandigarh

Dates of the workshop: 22nd and 23rd August, 2014

Spectroscopy is an immense tool in chemistry. This workshop intends to provide a platform for undergraduate and postgraduate students to understand several aspects of spectroscopy. Speakers from renowned institutes will be invited to deliver lectures on different topics of spectroscopy, like - vibrational, electronic, Laser and NMR. Detailed discussions on the concepts will definitely help the students understand and appreciate the subject in a broad sense. This workshop expects participation of the undergraduate and postgraduate students from nearby colleges. The lectures will focus on the applications and recent trends in spectroscopy in different areas of chemistry.

The Tentative Resource Persons are:

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<tr>
<th></th>
<th>Name</th>
<th>Institution</th>
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<tbody>
<tr>
<td>1</td>
<td>Professor E. Arunan</td>
<td>IISc, Bangalore</td>
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<td>2</td>
<td>Professor K.S. Viswanathan</td>
<td>IISER Mohali</td>
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<td>3</td>
<td>Professor Narayanan D Kurur</td>
<td>IIT Delhi</td>
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<td>4</td>
<td>Dr. Kamal Priya Singh</td>
<td>IISER Mohali</td>
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Areas to be covered under the Lecture Series

Professor N. Sathyamurthy (IISER Mohali): Structure and dynamics: a spectroscopic view

Professor K. S. Viswanathan (IISER Mohali): Infrared spectroscopy

Professor E. Arunan (IISc, Bangalore): Microwave spectroscopy

Professor N. D. Kurur (IIT Delhi): NMR spectroscopy

Dr. K. P. Singh (IISER Mohali): Femtosecond and attosecond spectroscopy
Tentative Programme Schedule:

22nd August, 2014 (Friday)

Venue: Multimedia Hall, MCM DAV College for Women, Sector 36, Chandigarh

Registration and Inauguration  : 8:30 am - 9:00 am
Invited Lecture I   : 9:00 am - 10:15 am
Professor N. Sathyamurthy: Structure and dynamics: a spectroscopic view
Tea     : 10:15 am - 10:30 am
Invited Lecture II   : 10:30 am - 11:45 am
Professor E. Arunan: Why do molecules absorb/emit radiation?
Invited Lecture III   : 11:45 am - 1:00 pm
Professor K. S. Viswanathan: Infrared Spectroscopy
Lunch     : 1:00 pm - 1:45 pm
Invited Lecture IV   : 1:45 pm - 3:00 pm
Professor N. D. Kurur: NMR Spectroscopy

23rd August, 2014 (Saturday)

Venue: Multimedia Hall, MCM DAV College for Women, Sector 36, Chandigarh

Invited Lecture V   : 9:00 am - 10:15 am
Dr. K. P. Singh: Femtosecond and Attosecond Spectroscopy
Invited Lecture VI   : 10:15 am - 11:30 am
Professor E. Arunan: Microwave Spectroscopy
Tea     : 11:30 am - 11:45 am
Invited Lecture VII   : 11:45 am - 1:00 pm
Professor K. S. Viswanathan: Infrared Spectroscopy
Lunch     : 1:00 pm - 1:45 pm
Invited Lecture VIII   : 1:45 pm - 3:00 pm
Professor N. D. Kurur: NMR Spectroscopy
Concluding Session   : 3:00 pm - 3:15 pm
Tea     : 3:15 pm
Science Academies’ Lecture workshop on “Spectroscopy- An Application in Chemistry” by Department of Chemistry, MCM DAV College for Women 22-23 August, 2014