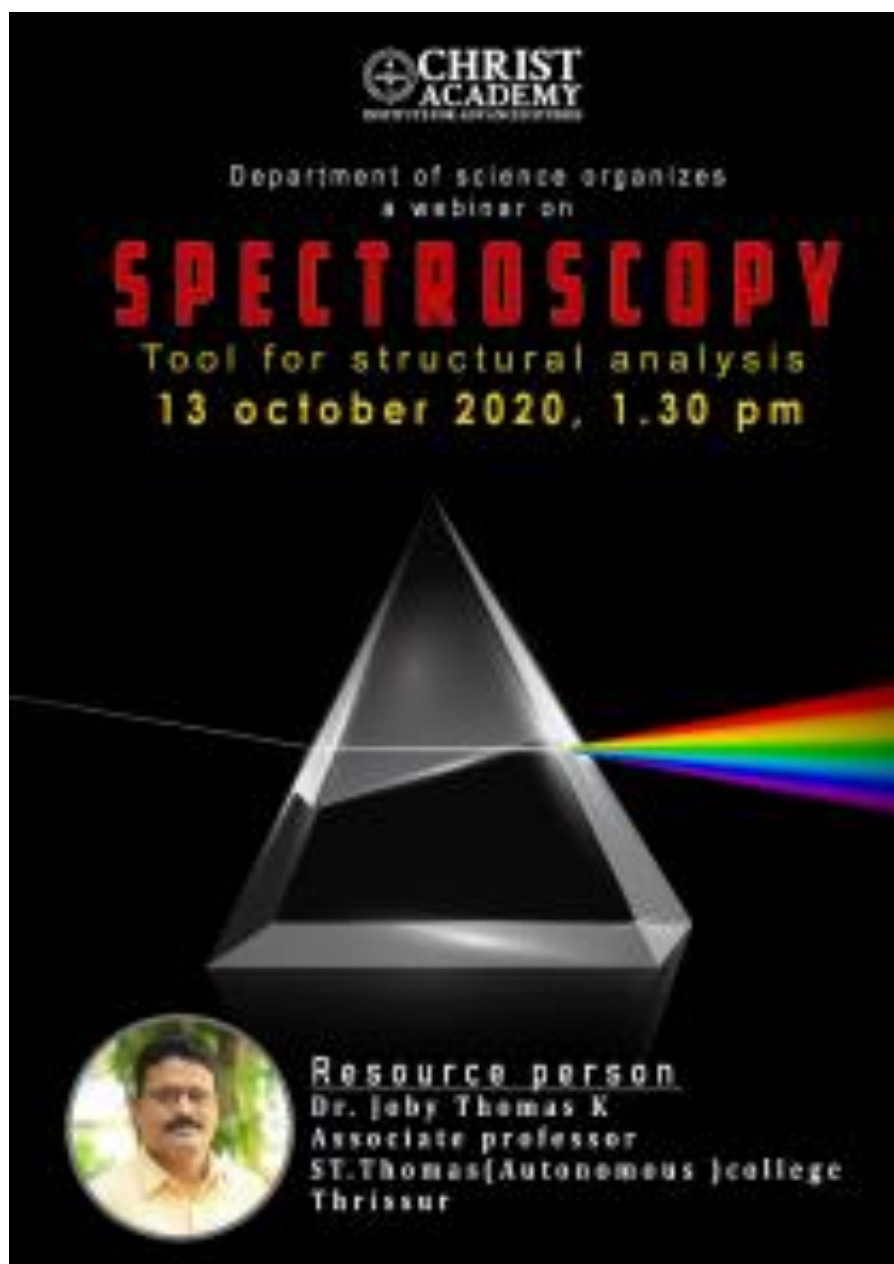


Webinar on “Spectroscopy-Tool for structural analysis”

Date: 13 Oct 2020 between 1.30 Pm-3.00 Pm

Venue: Online, Google Meet



Objective: To create an awareness in students about the importance of spectroscopy in research field and to provide a foundation to theories of different spectroscopic techniques like IR spectroscopy, Raman spectroscopy, electronic spectroscopy, ESR and NMR.

Abstract: On 13th October 2020 the department of science organized a webinar on ‘Spectroscopy-A tool for structural analysis’ at 1.30 PM through Google Meet. The event in-Charge Ms. Sherin Rison played the role of moderator of the webinar. The resource person of the event was Dr. Joby Thomas K, Associate Professor and Head of Research and postgraduate

department of chemistry, ST.Thomas (Autonomous) College, Thrissur. The webinar had successfully met the objective, which is the deep root foundation of different spectroscopic techniques in students. Spectroscopy is the study of the absorption and emission of light and other radiation by matter. It involves the splitting of light (or more precisely electromagnetic radiation) into its constituent wavelengths (a spectrum), which is done in much the same way as a prism splits light into a rainbow of colours. The students were also able to identify the importance spectroscopic analysis in the present research field. The session successfully came to an end with the vote of thanks delivered by Ms. Rohini .P as the representative of students.

Webinar on ChemDraw and Origin Software for Research Studies

Date: 8 December 2020 11.25 AM -12.10 PM

Venue: Online- Google Meet



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CHRIST ACADEMY
INSTITUTE FOR ADVANCED STUDIES

Department of Science Organisms
A webinar by in-house faculty
ON
Chem Draw & Origin software for research studies in Science
8-12-2020
11.25 am-12.10 pm
Audience BSc Students

 **Kharin Hians**
Assistant Professor
CAIAS

Objective: To introduce students to two different research analysis tools – Chem Draw and Origin Pro 8.5 which can be used for structural elucidation of molecules and plotting and modifying graphical representations.

Abstract: On 08th December 2020 the department of Science organized the first session of In-house Faculty webinar on ‘ChemDraw and Origin software for research studies in science’ at 11.25 AM through Google Meet. The resource person of the event was Ms. Sherin Rison, Assistant Professor of the Department of Science, Christ Academy Institute for advanced studies.

Dr. Sangeetha George K, HOD of the department of science delivered the welcome address and introduced the speaker of the event. The webinar had successfully met the objective, which is to give an insight to students regarding different analytical tools for the modern research field.

Students were introduced to two different research analysis tools – Chem Draw and Origin Pro 8.5 which can be used for structural elucidation of molecules and plotting and modifying graphical representations. Origin pro is a software for interactive scientific graphing and data analysis. It provides point-and-click access to a powerful suite of data analysis tools including curve fitting, peak analysis, and statistics. Customizations can range from simple modifications to a data plot, saved as a graph "template" for later use, to customized data analyses which produce publication-quality reports, saved as an Analysis Template. Batch plotting and analysis operations are also supported, wherein templates are used for repeat analysis of multiple files or datasets. ChemDraw is a simple-to-use program that allows to draw intuitively and efficiently two- dimensional and three-dimensional representations of organic molecules. The drawing of chemical formulae and reaction schemes is a repetitive task for chemists on all levels of their education. While hand-sketching is most efficiently used during discussions and learning, neat drawings are required for official reports, publications, and theses. Such drawings can be created with the help of ChemDraw. The students were also able to identify the importance of different analytical tools in the present research field. The session successfully came to an end with the vote of thanks delivered by Dr. Sangeetha George K, HOD of the department of science.

**International Webinar on Applications of Optical Instrumentation,
Ultrafast Spectroscopy and Spintronics.**

Date: 30 January 2021; 2:15 PM – 5:30 PM.

Venue: Online- Google Meet



The Department of Science
invites you to International Webinar
ON

**"APPLICATIONS OF OPTICAL INSTRUMENTATION,
ULTRAFAST SPECTROSCOPY AND SPINTRONICS"**

30th January 2021, 2:15 PM IST

Registration form link: <https://forms.gle/EidmExdaWolwMRTW8>

Meet link: meet.google.com/ago-cwxi-igx

Objective: To provide the glimpses of recent research happening in the field of Optical instrumentation, Ultrafast spectroscopy and Spintronics. Also, to provide real time practical applications.

Abstract: An International webinar on “Applications of Optical Instrumentation, Ultrafast spectroscopy and Spintronics” was organized by the Department of Science, Christ Academy Institute for Advanced Studies, on 30th January 2021 from 2:15 PM to 5: 30 PM. 452 viewers watched the event through YouTube live streaming. The participants include faculty, students

(UG & PG), researchers and common people. The event started with the prayer song by Ms Varmitha from second year BSc PCM, followed by a welcome address by Dr. Sangeetha George (HOD, Department of Science). Dr Sangeetha George extended her warm welcome to Reverend fathers, resource persons, faculty and all the participants of the webinar. Ms Gayathri Mohan K V gave a brief introduction about CAIAS, department of science and the webinar. The presidential address was delivered by Rev. Fr. Dr. Babu Paul CMI, Principal, CAIAS. Father appreciated the organizers and extended his warm welcome to the participants and resource persons. Father emphasized on the importance of conducting webinars, which is an excellent platform for knowledge sharing, during this pandemic.

The first lecture started at 2:30 PM. Dr. KrishnaKumar Chullipalliyalil talked about the practical applications of optical instrumentation. As an introduction he talked about his work that is Fluorescence, Raman and Imaging based instrumentation applications for pharma, biopharma, food industries. Application areas are verification of cleaning in industry, product quality control, product process control. In the first application he explained how deep UV Fluorescence are used for cleaning validation in pharmaceutical industries. The second application was Mask efficacy by Imaging which basically was about the quality control of masks which is a relevant topic now. Dr. KrishnaKumar Chullipalliyalil concluded by mentioning few other techniques like laser line imaging that has been used for various applications.

The second lecture started at 3:10 PM. Dr. Manoop Chenchiliyan talked about the applications of Ultrafast spectroscopy for the study of biological systems. As an introduction he talked about the fundamentals of spectroscopy. Later he explained the experimental set up i.e. Fluorescence spectroscopy that has been used to study the features of photosynthetic purple bacteria. He explained the aim of his research is to study the number of peripheral antenna sizes of these bacteria, energy migration rate, trapping efficiency. He concluded by explaining how dimeric cores help to enhance the photon trapping efficiency in these bacteria. And he explained how the new spectroscopic technique allowed him to study the photocycle event from a phytochrome and how he found a new photocycle intermediate in the phytochrome.

The last lecture started at 4:10 PM. Mr. Venkata Krishna Bharadwaj talked about Spintronics: Exploiting the dual personalities of the electron to new possibilities for information storage. As an introduction he spoke about the basis of spin of electrons, effect of electron spin on electronics, spin dependent scattering, giant magneto resistance. Later, he explained about MRAM and other applications. In the second half of his talk, he explained in detail about magnetic skyrmions, generation of skyrmions, skyrmions racetrack memory. He concluded the talk by saying spintronics is not only used for information storage but can be used in spin logic, neuromorphic computing, stochastics computing and many more.