

**SOPHIA GIRLS' COLLEGE**  
**(AUTONOMOUS), AJMER**



**DEPARTMENT OF CHEMISTRY**

**2021-22**

**1. National Webinar on “Spectroscopic Techniques: A Tool for Structure Elucidation”  
(STTSE-2021)**

**Name of the Activity** – National Webinar on “Spectroscopic Techniques: A Tool for Structure Elucidation” (STTSE-2021)

**Date of activity**- 21<sup>st</sup> - 22<sup>nd</sup> October, 2021

**Number of Participants** – 1033

**Venue**–Online through Zoom platform

**Resource Person** –

S.No.	Name	Designation and Affiliation	Contact No.	Contribution in event as
1.	Dr. G. Ramakrishnan	President, Chromatographic Society of India, Mumbai Area, India	9820093260	Keynote Speaker
2.	Prof. Ram T. Pardasani	Senior Professor, Central University of Rajasthan, India	9414320581	Invited Speaker
3.	Dr. Rakesh K. Sharma	Assistant Professor, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat	9228499273	Invited Speaker
4.	Dr. Rajendra K. Sharma	Assistant Professor, Regional Institute of Education, Ajmer	9414278789	Invited Speaker

**Objective of the Activity**

The National Webinar was organised with the aim to introduce the recent advancements in the field of various spectroscopic techniques to the participants which will be helpful in inculcating better understanding of the various spectroscopic techniques as these techniques hold prime importance in research and development wings of various types of industries.

**Learning Outcome**- Through this National Webinar, better understanding about various spectroscopic techniques was developed in the participants. The Webinar also provided a platform to increase awareness regarding recent advances in various spectroscopic techniques.

# NATIONAL WEBINAR

*On*

## *“Spectroscopic Techniques: A Tool for Structure Elucidation”*

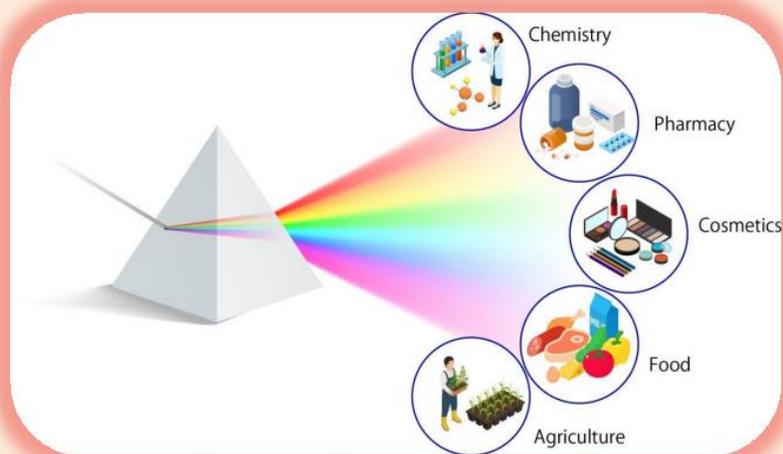


**(STTSE-2021)**

**October 21<sup>st</sup>-22<sup>nd</sup>, 2021**

**Organized by**

***Department of Chemistry  
Sophia Girls' College (Autonomous), Ajmer***



## *About the National Webinar*

### *"Spectroscopy Acts as an Eye to a Scientist"*

Spectroscopy holds prime importance in every area of Science and Technology; from Research and Analysis to being fundamental to every industry may be chemical, petrochemical, mining, food and many more to space exploration. It is a Molecule's Fingerprint, unique to every molecule. It acts as a tool for studying the structure of atoms and molecules, for finding the chemical composition of unknown constituents, for determining the concentration of certain compounds in air and soil samples, in biomedical sciences, in astronomy to name a few. This webinar will enrich the knowledge about the various spectroscopic techniques, their applications and advancements.

## *Our Esteemed Speakers*



***Dr. G. Ramakrishnan***

*President*

*Chromatographic Society of India  
Mumbai Area, India*



***Prof. Ram T. Pardasani***

*Senior Professor*

*Department of Chemistry  
Central University of Rajasthan, India*



***Dr. Rakesh K. Sharma***

*Assistant Professor*

*Department of Applied Chemistry  
The Maharaja Sayajirao University of Baroda,  
Vadodara, India*



***Dr. Rajendra K. Sharma***

*Assistant Professor*

*Department of Chemistry  
Regional Institute of Education, Ajmer, India*

## **Organizing Committee**

### **Patron**

**Dr. Sr. Pearl**

*Principal*

Sophia Girls' College (Autonomous), Ajmer, India

### **Convener**

**Dr. Taruna Sethi**

*Associate Professor & Head*

Department of Chemistry

Sophia Girls' College (Autonomous), Ajmer, India

### **Organizing Secretary**

**Dr. Suneeta Rao**

*Assistant Professor*

Department of Chemistry

Sophia Girls' College (Autonomous), Ajmer, India

### **Members of Organizing Committee**

**Ms. Laveena Gulabchandani**

**Ms. Divya A. Thomas**

**Dr. Tanveer A. Khan**

Department of Chemistry

Sophia Girls' College (Autonomous), Ajmer, India

**Link for Registration: <https://forms.gle/3CGjoVXtELgYgeFC7>**

✓ **“No Registration Fee”**

✓ **“E-Certificates will be provided to those who attend both the days of the Webinar”**

✓ **Meeting will be conducted via zoom platform**

✓ **Time: 11:30 am Onwards**

### **Contact Details**

Email Id: [chemistry@sophiacollegeajmer.in](mailto:chemistry@sophiacollegeajmer.in)

Dr. Taruna Sethi: +91-9460610654 and Dr. Suneeta Rao: +91-9413892143

NATIONAL WEBINAR ON "SPECTROSCOPIC TECHNIQUES - A TOOL FOR STRUCTURE ELUCIDATION" ORGANISED BY DEPARTMENT OF CHEMISTRY SOPHIA GIRLS' COLLEGE (AUTONOMOUS), AJMER (RAJ.)



**Drugs derived from Plants**

**Coca Plant (Erythroxylum coca)**  
Source for Cocaine (Abused Drug) Is good as local anaesthesia

**Sarpagandha (Rauwolfia Serpentina)**  
Source for Reserpine- used for Blood pressure and psychiatric disorders

Promoting Chromatography Education Dr. G. Ramakrishnan

**Historical Background**  
1802 Fraunhofer Absorption Lines

Wollaston and Fraunhofer, working independently, discover dark lines in the solar spectrum.

Fraunhofer introduces diffraction grating which obtains better spectral resolution.

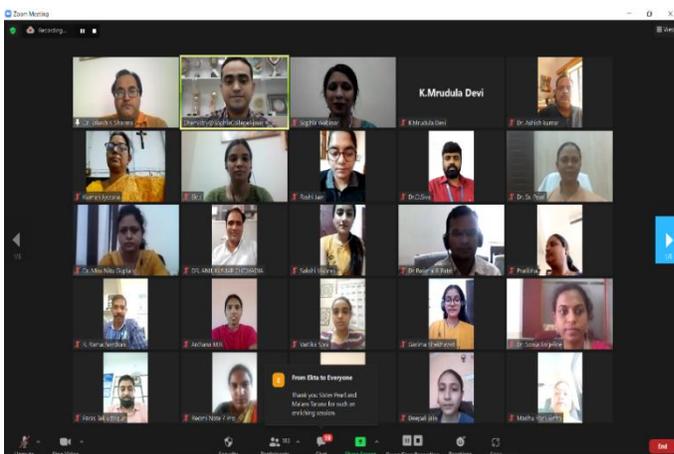
Fraunhofer proposes that dark lines are due to the sun's own atmosphere absorbing light.

**Molecular ion Peak : Molecular Formula**

- Generally species of highest m/z

$$M \xrightarrow{-e} M^+ + 2e$$

- Denoted as  $[M]^+$  also corresponds to molecular weight of compound



## **2. Power Point Presentation “Skopia Metria: Explore Molecules”**

**Name of the Activity-** Power Point Presentation “Skopia Metria: Explore Molecules”

**Date of activity** – 4<sup>th</sup> December, 2021

**Number of Participants** – 29 students

**Venue** - Room No. 109, Sophia Girls’ College (Autonomous), Ajmer

### **Objective of the Activity**

The aim of organising the Power point presentation “Skopia Metria: Explore Molecules” is to brush up the teaching skills of the PG students and to enrich their Knowledge. It will be helpful in inculcating creativity and digital knowledge to prepare an effective presentation in the students. It will augment the presentation skills and thus helps in the holistic growth of the learners.

**Learning Outcome-** The Power point presentation activity was helpful in enhancing the teaching and presentation skills of the students.



# CATALYST THE CHEMISTRY FORUM

**SOPHIA GIRLS' COLLEGE (AUTONOMOUS),  
AJMER**

**ORGANISES**

*The Power Point Presentation*

*"Skopia Metria: Explore Molecules"*



4<sup>th</sup> December, 2021

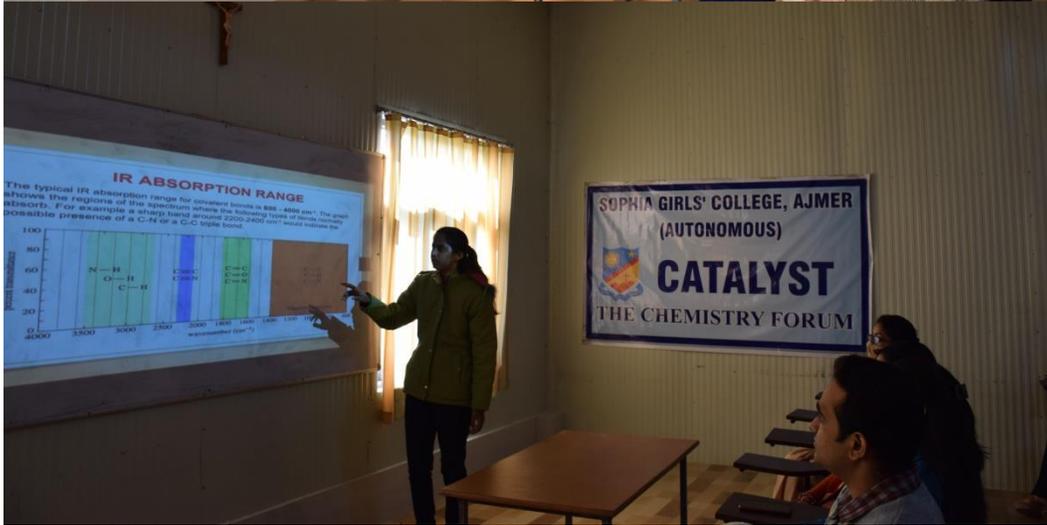


**Room No.109**



11:00 am







3. An Expert Talk on “Preparation Strategies for CSIR- NET Chemical Sciences”

# CATALYST THE CHEMISTRY FORUM

**SOPHIA GIRLS' COLLEGE (AUTONOMOUS),  
AJMER**



Organises  
an Expert Talk

On

## "PREPARATION STRATEGIES FOR CSIR-NET CHEMICAL SCIENCES"

**"THE BEST PREPARATION FOR TOMORROW IS DOING  
YOUR BEST TODAY**



**JANUARY 21, 2022 | 10am**



**Online mode via Google Meet**



Dr. R.K. Sharma  
Assistant Professor,  
Department of Chemistry,  
Regional Institute of  
Education, NCERT, Ajmer

**"THE SECRET OF YOUR SUCCESS IS DETERMINED BY  
YOUR HARD WORK AND STRONG FOCUS ON YOUR  
GOAL."**

**Name of the Department-** Chemistry

**Name of the Activity-** An Expert Talk on “Preparation Strategies for CSIR- NET Chemical Sciences”

**Date of activity** – 21<sup>st</sup> January, 2022

**Number of Participants** – 31 students

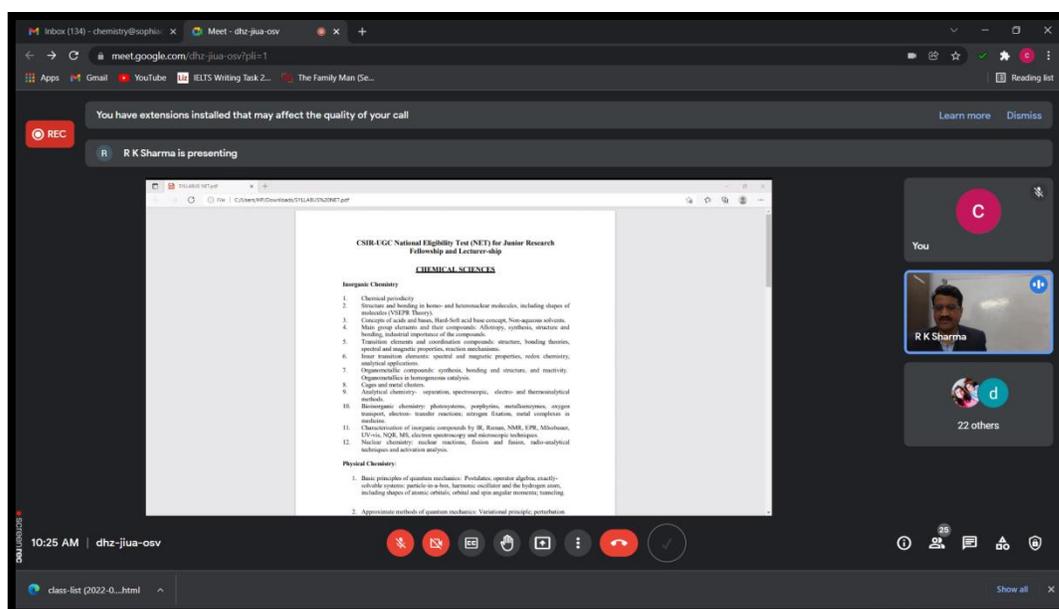
**Venue**–Online through Google Meet

**Resource Person** – Dr. R.K. Sharma, Assistant Professor, Department of Chemistry, Regional Institute of Education, NCERT, Ajmer.

**Objective of the Activity-** The aim of the expert talk on Preparation strategies for CSIR-NET exam was to help the aspirants in making effective roadmap for methods of attempting questions and getting success in the above endeavour. The Seminar was exclusively organised for the M.Sc. Chemistry Previous and Final year Students as CSIR- NET is a significant milestone in their academic journey.

### Learning Outcome

The Seminar will provide a bright opportunity for the CSIR- NET aspirants to achieve success in this prestigious national level examination.



The screenshot shows a Google Meet interface during a presentation. The main window displays a PDF document titled "CSIR-UGC National Eligibility Test (NET) for Junior Research Fellowship and Lectureship". The document lists the following topics:

- CHEMICAL SCIENCES**
- Inorganic Chemistry**
  1. Chemical periodicity
  2. Structure and bonding in homo- and heteronuclear molecules, including shapes of molecules (VSEPR Theory)
  3. Concepts of acids and bases, Hard-soft acid base concept, Non-aqueous solvents.
  4. Main group elements and their compounds: Alchemy, synthesis, structure and bonding, industrial applications of the compounds.
  5. Transition elements and coordination compounds, structure, bonding theories, spectral and magnetic properties, kinetic applications.
  6. Inner transition elements: spectral and magnetic properties, radio chemistry, analytical applications.
  7. Organometallic compounds: synthesis, bonding and structure, and reactivity. Organometallics in homogeneous catalysis.
  8. Cages and metal clusters.
  9. Analytical chemistry – separation, spectroscopic, electro- and thermanalytical methods.
  10. Bioinorganic chemistry: photosynthesis, porphyrins, metalloenzymes, oxygen transport, electron transfer reactions, nitrogen fixation, metal complexes in medicine.
  11. Characterization of organic compounds by IR, Raman, NMR, EPR, Ultraviolet, UV-vis, NQR, MS, electron spectroscopy and microanalysis techniques.
  12. Nuclear chemistry: nuclear reactions, fission and fusion, radioanalytical techniques and activation analysis.
- Physical Chemistry**
  1. Basic principles of quantum mechanics: Postulates, operator algebra, exactly solvable systems: particle in a box, harmonic oscillator and the hydrogen atom, including shapes of atomic orbitals, orbital and spin angular momenta, tunneling.
  2. Approximate methods of quantum mechanics: Variational principle, perturbation

The Meet interface includes a "REC" button, a "R K Sharma is presenting" notification, a video thumbnail for R K Sharma, and a "22 others" indicator. The bottom status bar shows the time as 10:25 AM and the meeting ID as dhz-juua-ov.

Inbox (134) - chemistry@sophia... x | (20) WhatsApp | Meet - dhz-jua-ov

meet.google.com/dhz-jua-ov?pli=1

You have extensions installed that may affect the quality of your call. Learn more Dismiss

chemistry college is presenting

*Catalyst The Chemistry Forum*

**Sophia Girls' College (Autonomous), Ajmer**

Organizes  
A Seminar on

**"Preparation Strategies for CSIR - NET  
Chemical Sciences"**

**21<sup>st</sup> January, 2022**




Ritika Gupta	niharika kumaw...	Vidita Indora	simran dewani
diksha kumawat	komal bhasin	Tanisha Kimsaqa	Arpita Narasim
Riti Mongra	Nikita Rathore	Mansi Jain	taruna sophia
ananta modani	Mahima Gehlot	8 others	You

Are you talking? Your mic is off. Click the mic to turn it on.

10:00 AM | dhz-jua-ov

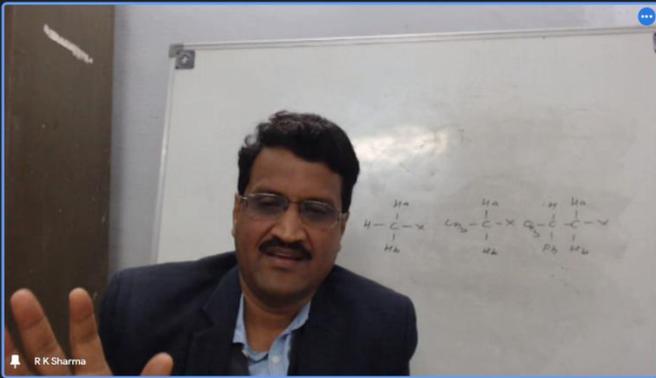
class-list (2022-0...html) Show all

Inbox (134) - chemistry@sophia... x | (25) WhatsApp | Meet - dhz-jua-ov

meet.google.com/dhz-jua-ov?pli=1

REC You have extensions installed that may affect the quality of your call. Learn more Dismiss

R K Sharma



Riti Mongra	komal bhasin	Deeptee Veda Davey
Pooja Rawat	Insia Nikhat	SHIVANI SISODIYA
V S	Vidita Indora	diksha kumawat
Surya Pratap	11 others	You

11:33 AM | dhz-jua-ov

class-list (2022-0...html) Show all

4. "ChemWorld- The Chemistry Model Fest"

**CATALYST THE CHEMISTRY  
FORUM**

**Sophia Girls' College (Autonomous), Ajmer**  
organises

**ChemWorld**

**The Chemistry Model Fest**



**Date - 11<sup>th</sup> March, 2022**

**Venue - Fortunatus Indoor Stadium**

**Time - 12: 00 pm**

**Students have to prepare working/ non-  
working models on any topic related to  
Chemistry**

**The activity aims at  
enhancing creativity of  
students and will help  
them apply their  
theoretical knowledge  
practically**

**All the Participants will get an e- certificate.  
Interested Students may submit their names on or before February 22 2022.**

**Name of the Department-** Chemistry

**Name of the Activity-** “ChemWorld- The Chemistry Model Fest”

**Date of activity** – 11<sup>th</sup> March, 2022

**Number of Participants** – 62

**Venue**–Fortunatus Indoor Stadium

**Resource Persons** –

S.No.	Name	Designation and Affiliation	Contribution in event as
1.	Dr. Alok Chaturvedi	Associate Professor, SPC Government College, Ajmer	Judge
2.	Dr. Pragya Tak	Associate Professor, SPC Government College, Ajmer	Judge
3.	Dr. Narendra Nirwan	Assistant Professor, Government Girls College, Ajmer.	Judge

**Objective of the Activity** –

The aim of the ChemWorld- The Chemistry Model Fest was to enrich the creative and innovative aptitude in the students and explore the applications of various fundamentals in practical world. Total 62 students participated in the model making competition from both undergraduate and postgraduate classes. The students displayed various types of models which were based on significant topics of chemistry syllabi such as electrochemistry, periodic Table, crystal structures, and nuclear chemistry, in an innovative and creative way which attracted the attention of the visitors. The model making competition was judged by experts from reputed institutions of Ajmer.

**Learning Outcome**

The Model Fest enriched the creative and innovative aptitude in the students. It provided the platform to students to showcase their practical knowledge.

