

Electron Diffraction: Introduction, Theory of electron diffraction, Wierl equation and its significance (qualitatively), Elucidation of structure of simple gas molecules. Structure of surfaces - (Low and high Energy Electron Diffraction, Transmission electron microscopy (TEM), SEM. Theory and applications of Neutron diffraction. Comparison between X-ray, electron and Neutron diffractions. 3hrs .

REFERENCES:

1. Fundamentals of Molecular Spectroscopy, Banwell & McCash (Tata McGraw Hill, New Delhi) 2007.
2. Spectroscopy, H. Kaur (Pragathi Prakashana, Meerut), 2012.
3. Spectroscopy, Donald L. Pavia (Cengage learning India Pvt. Ltd., Delhi), 2007.
4. Spectroscopy, B.K. Sharma (Goel prakashan, Meerut), 2013.
5. A Basic Course in Crystallography, JAK Tareen and TRN Kutty, University Press, Hyderabad (2001).
6. Essentials of Crystallography, M.A. Waheb, Narosa Publishing House, New Delhi (2009),
7. X-ray methods, Clive Whiston, (John Wiley & Sons, New York) 1987.

CH P 407: INORGANIC CHEMISTRY PRACTICALS – I

COURSE OUTCOME:

- Students will have hands on experience on the analysis of Hematite Dolomite, Pyrolusite, Solder,
- Analysis of Halide Mixture, Colorimetric Determination, Gravimetric determinations and Statistical Analysis of Data.
- To understand Complexometric determination and hardness of water
- It enables the students to learn Statistical Analysis of Data.

1. Analysis of Hematite-insoluble residue by gravimetry and Iron by volumetry using Ce^{4+} .
2. Analysis of Dolomite - insoluble residue by gravimetry and Ca, Mg by complexometry.
3. Pyrolusite - Insoluble residue by gravimetry and Manganese content by oxalate method.
4. Analysis of solder - Pb and Sn by EDTA method.
5. Complexometric determination of Mn, Cu, Ni and Fe-Cr mixture
6. Hardness of water
7. Analysis of Halide Mixture - Iodide by KIO_3 and total halide by gravimetrically.
8. Colorimetric Determination of Iron by thiocyanate and Cu by aqueous ammonia.
9. Gravimetric Determinations of Mn, Ni, Mo, Pb/Cr, sulphide, thiocyanate.
10. Statistical Analysis of Data.

Reference :

1. Vogel's Text Book of Quantitative Chemical Analysis (5th Ed), G.H. Jeffrey, J. Bassette, J. Mendham and R.C. Denny, Longman, 1999.

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Department of Studies in Chemistry

Organises
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Frontier Research in Chemical Sciences 2020

September 10 – 12, 2020



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Resource Persons

Alumnae of the Department



Dr. Sahana Malliya
SRI International, USA



Dr. Rashmi Nayak
NCL Pune, India



Dr. Shridevi S. Bhat
New York, USA



Dr. Anitha Alanthadka
IIT Roorkey, India



Dr. A. S. Amrutha
RIES, Hokkaido University, Japan



Dr. Sahana Roessler
Max-Planck Institute, Germany

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Mangalore University
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International Webinar
on

Frontier Research in Chemical Sciences 2020

September 10 – 12, 2020

Program Schedule

Thursday, 10-09-2020

- | | |
|------------------------|---|
| 10.00am-10.30am | Inauguration |
| 10.30am-11.30am | Lecture 1: Dr. Sahana Malliya, SRI International, USA |
| Title | SynJet™ – An automated chemistry platform for high throughput reaction screening and optimization |
| 11.45am-12.45pm | Lecture 2: Dr. Rashmi Nayak, NCL Pune, India |
| Title | Luminescent molecular liquids for large area lighting applications |

Friday, 11-09-2020

- | | |
|------------------------|---|
| 10.30am-11.30am | Lecture 3: Dr. Shridevi S. Bhat, New York, USA |
| Title | How nanotechnology can change the world? |
| 11.45am-12.45pm | Lecture 4: Dr. Anitha Alanthadka, IIT Roorkee, India |
| Title | Sustainable catalytic methodologies towards the synthesis of N-heterocyclic compounds |

Saturday, 12-09-2020

- | | |
|------------------------|---|
| 10.00am-11.00am | Lecture 5: Dr. A. S. Amrutha, RIES, Hokkaido University, Japan |
| Title | Targeted activation of motor protein – driven molecular transportation by visible light |
| 11.15am-12.15pm | Lecture 6: Dr. Sahana Roessler, Max-Planck Institute, Germany |
| Title | Spin-orbit entangled states in 4d and 5d transition element compounds |
| 12.30pm-01.00pm | Valedictory |





Mangalore University

Department of Studies in Chemistry

International Webinar on Frontier Research in Chemical Sciences (FRCS 2020)



Mangalore University
Mangalagangothri - 574 199

Department of Studies in Chemistry
Organises
International Webinar on
Frontier Research in Chemical Sciences 2020
September 10 - 12, 2020

* Free Registration. * e-certificates to participants
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Resource Persons
Alumnae of the Department

 Dr. Sahana Maliya SRI International, USA	 Dr. Rashmi Nayak NCL Pune, India	 Dr. Shridevi S. Bhat New York, USA
 Dr. Anitha Alanthadka IIT Roorkee, India	 Dr. A. S. Amrutha RIES, Hokkaido University, Japan	 Dr. Sahana Roessler Max-Planck Institute, Germany

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11.15am-12.15pm	Lecture 6: Dr. Sahana Roessler, Max-Planck Institute, Germany Title: Spin-orbit entangled states in 4d and 5d transition element compounds
12.30pm-01.00pm	Valedictory



Department of Studies in Chemistry, Mangalore University organised an international webinar on Frontier Research in Chemical Sciences (FRCS 2020) during September 10 - 12 2020.

This webinar was very special as all the invited resource persons are Alumnae of the Department of Chemistry, Mangalore University who are actively involved in research in India and abroad. Inauguration of the webinar was done on September 10 2020. Prof. P. S. Yadapadithaya presided over the Inauguration function. After the Inauguration, Dr. Sahana Maliya, SRI International, USA delivered the first lecture on 'SynJet™ – An automated chemistry platform for high throughput reaction screening and optimization. The 2nd lecture of the Day 1 was delivered by Dr. Rashmi Nayak, NCL Pune, India on 'Luminescent molecular liquids for large area lighting applications.

On the Day 2, Dr. Shridevi S. Bhat, New York, USA delivered the first lecture on 'How nanotechnology can change the world?' Subsequently, Dr. Anitha Alanthadka, IIT Roorkee, India presented the 2nd lecture on the topic 'Sustainable catalytic methodologies towards the synthesis of N-heterocyclic compounds' On the Day 3, Dr. A. S. Amrutha, RIES, Hokkaido University, Japan delivered the lecture on 'Targeted activation of motor protein – driven molecular transportation by visible light'. The last lecture of the webinar was presented by Dr.

Sahana Roessler, Max-Planck Institute, Germany on the topic 'Spin-orbit entangled states in 4d and 5d transition element compounds'.

Faculties of various institutions, MSc students, Guest faculties and other invitees participated in the webinar. Overall around 250 participants benefited from this webinar. Almost all the participants appreciated the organising team for arranging such a wonderful webinar. Many of the participants actively interacted with all the resource persons. After all the lectures, valedictory function was conducted. Sri K. Raju Mogaveera, Registrar, Mangalore University presided over the valedictory function.

