Volume No 1(1) Year 2021

CHEMINEWS

THE ICFAI UNIVERSITY, TRIPURA

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Kamalghat, Mohanpur
West Tripura – 799210

From the Chancellor's Desk

I am glad to note that the Department of Post-Graduate Teaching and Research in Chemistry under the Faculty of Science and Technology of ICFAI University Tripura is bringing out a Newsletter highlighting its teaching and related activities. I am sure that the Newsletter would be of great utility for the students, teaching and research community of the University and the public at large. Chemistry is an interdisciplinary subject dealing with the highly abstract areas like mathematics on the one side, and the experiment-intensive areas like biological sciences on the other end. There is hardly any area of human intervention where the impact of chemistry is not felt now. Several new and emerging areas in chemistry have developed during the last few decades. Innovations are happening in a revolutionary way in the teaching, research and day-to-day applications of chemistry. It is very important to to keep abreast with these fast-changing innovations in the field of Chemistry. In this context the publication of a Newsletter by the progressively upcoming University Chemistry Department of ICFAI University Tripura is laudable. I am sure that the editorial board of the Newsletter will take care to see that the importance of quality teaching, quality research and the relevance and quality of research publications are properly emphasized and communicated to the students, teachers and researchers in the field of Chemistry. The Newsletter will be a great value addition to the Department, Faculty of Science and the University as a whole. I congratulate the Head of the Department and her team for taking up this academic initiative and wish them all success in the endeavor.

(Electronic Copy)

Prof. (Dr.) V. N. Rajasekharan Pillai
Chancellor
ICFAI University Tripura

From the Pro-Vice Chancellor's Desk

I am delighted to announce that the Department of Chemistry of ICFAI Science School of The ICFAI University Tripura is coming up with its first Newsletter for encouragement and documentation of the current academic, other extracurricular activities and achievements of the department. I congratulating to each and every member of this department for their respective roles in this initiative.

The Chemistry Department of the University is ranked No. 22 (by count) amongst all the Chemistry Departments under any Indian institutes, according to **Nature Index**. I am congratulating to each and every Faculty member of the Department of Chemistry for this achievement.

The ICFAI University Tripura is a premier academic institution of the State of Tripura providing quality education and research facilities for the young northeastern talents. Our university attracts talented students and researcher from all over India and abroad too.

The Department of Chemistry was established in 2018 and now offering B. Sc.(Hons.), M. Sc. Degrees and Ph. D program. Today, on the eve of launching the First volume of Newsletter from the Department of Chemistry, I am glad to remark that the ICFAI University Tripura is one of the best academic as well as research institution and for this I am congratulating to each and every member of this big family for their respective roles in this ardent venture.

Prof. (Dr.) Biplab Halder
Pro-Vice Chancellor
ICFAI University Tripura

From the Registrar's Desk

My hearty congratulations to the Department of Chemistry, The ICFAI University Tripura for launching their first volume of the newsletter. The Department of Chemistry has become one of the best Departments of the ICFAI University Tripura in the span of over just two years since its establishment in 2018. In the hard times of the recent COVID-19 crisis, the Department of Chemistry, along with all the other departments of the ICFAI University Tripura has been engaged actively in organizing various academic programs along with all the online regular classes and academic assignments of the university. Online seminars from eminent scientists and researchers are also being regularly held via online platforms. The active initiatives taken by the Department of Chemistry ensure to minimize the amount of academic losses due to this pandemic situation where the teaching-learning process has become entirely online. In this hard time, the initiative taken to publish the first newsletter is a wonderful and welcoming step from the Department of Chemistry. I wish Good Luck to the earnest endeavors of the Department of Chemistry.

Prof. (Dr.) A. Ranganath
Registrar
The ICFAI University Tripura

From the Dean's Desk

It gives me immense pleasure to welcome you to the first issue of the Chemistry Department's annual newsletter. This newsletter is to disseminate information of the different activities of the Department. Here you will find the latest news about the department, the excellent programs conducted by the department like Seminar, Student's Technical Talks, Poster presentation, webinar etc.

Department of Chemistry offers B.Sc. (H) and M.Sc. program in Chemistry. These programs provide opportunities to students in a wide range of chemical disciplines including physical, organic, inorganic, analytical, environmental and theoretical chemistry. Department is equipped with innovative curriculum which provides excellent training to students for a variety of career opportunities including careers in the chemical industry, medicine, academia, research and other government and non-governmental organizations.

I congratulate all the members of the department for completion of the newsletter in a short notice.

Prof. (Dr.) Priyangshu Rana Borthakur
Dean, Faculty of Science & Tech
ICFAI University Tripura

From the HOD's Desk

It is my pleasure and honour to welcome you about the department of Chemistry, ICFAI Science School. Our department is doing extremely well with regards to the infrastructure and teaching methods. The teaching staff of my department comprises a group of successful people with Ph.D degrees as well as accomplishments in Research and Teaching. Our department is publishing its first Newsletter Volume, compiling of academic programs, teacher-student achievements, student talk, innovative initiatives taken as well as the resolutions for conducting future programs. The Newsletter is a new academic expedition to encourage students and teachers and indulge them in academic friendly and institutionally approved activities, in addition to the traditional learning process.

ICFAI Science School along with the B.Sc. and M.Sc. has also started the PhD program. We have a very favorable faculty-to-student ratio, which encourages close contact between students and their faculty mentors. This allows the faculty to give personalized attention to the academic progress of students. Our courses are designed to provide students the knowledge of Applied Chemistry, and also introduce them to various experimental skills.

The Department has excellent lab facilities which are being upgraded from time to time and provide ample opportunities for the students to learn and innovate. The Department organizes interactive lectures and Faculty Development Programs/ Seminars by inviting Educationists and Technocrats from industries for the overall development of students as well as for faculties.

Besides, the department has been constantly revising the contents of the theory and practical (laboratory) syllabi. We focus to build strong foundation among the students so that they can apply their knowledge to solve problems in different state and national level examination. Our aim is also enhance the moral and ethical values amongst students. The department faculty works with excellent team spirit and also doing excellent research publications in their respective areas. Apart from the regular curriculum the department strives to develop the students into intellectual prodigy .The department conducts various programs under the departmental association such as Workshops, Technical Training, Symposium, Project-expo and Seminar by Experts from Academic background for constant knowledge up-gradation of students. I credit the hard works of my Department while I also acknowledge the aid and assistance of all the ICFAI University Family, Tripura.
This newsletter is an attempt to highlight the achievements of the department, in spite of the space constrain we have showcased the best and look forward to have more in the future on a quarterly editions.

I wish good luck to the entire team of editors and look forward for your kind patronage to our newsletter

With Regards
Dr. Swarnali Nath Choudhury
HOD, Associate Professor
Faculty of Science And Technology
ICFAI University Tripura.

CHEMINEWS

Issue Editors

Dr. Swarnali Nath Choudhury, Associate Professor & H.O.D. Chemistry
Dr. Soumendra Nath Bandyopadhyay, Assistant Professor in Chemistry

Editorial Board

Dr. Ganesh Chandra Paul, Assistant Professor in Chemistry
Dr. Satyajit Mondal, Assistant Professor in Chemistry
Dr. Amitava Sharma, Assistant Professor in Chemistry
Dr. Tufan Singha Mahapatra, Assistant Professor in Chemistry
Dr. Subhadip Roy, Assistant Professor in Chemistry
Dr. Prasanta Sutradhar, Assistant Professor in Chemistry

Courses Offered

- B. Sc. (Hons.) Chemistry
- M. Sc. Chemistry
- Ph. D. Chemistry (Full time)

Area of Research

- Bio-inorganic Chemistry and Catalysis
- Coordination Chemistry
- Supramolecular Chemistry
- Surfactant and Surface Activity
- Theoretical Spectroscopy
- Natural Products
- Nano-chemistry and nanotechnology
- Computational Chemistry
- Biophysical & Colloid Chemistry

About the Department of Chemistry

The Department of Chemistry started its journey in August, 2018. Since then it came a long way to present, promote and nurture science in young minds. Currently B. Sc. (Hons.), M. Sc. And Ph. D. courses are being offered in the department. The Department of Chemistry has highly qualified faculty members actively engaged in cutting edge emerging research areas. Students are also trained in prestigious institutions during their internship projects in the summer. M. Sc. Projects are being conducted in active research areas in the Departmental facilities. To promote pedagogy and entrepreneurship, numerous seminars are being held throughout the year.

Highlights of the Department

- Undergraduate, Postgraduate and Doctorate of Philosophy degrees are offered
- Highly qualified faculty
- Well-equipped Laboratory facility
- Research and publications in emerging research areas
- Seminars by highly qualified experts from all over India and abroad
- Preparatory classes for competitive examinations (NET, GATE etc.)
- Mr. Amalesh Roy (ID No. 18IUT0090007) and Mr. Ujjwal Das (ID No. 18IUT0090018) have qualified GATE- 2020 examination with the special guidance of faculty members of Dept. of Chemistry

ICFAI FAMILY

ICFAI Family- Welcome the newly joined faculty members in the Department of faculty of FST

Dr. Prasanta Sutradhar
Assistant Professor, Faculty of FST,
The ICFAI University, Tripura

Dr. Prasanta Sutradhar has joined on 6th August, 2020, as Assistant Professor, Faculty of FST, The ICFAI University, Tripura.
Previously, he was designated as Faculty of Chemistry Department at NIT Trichy, Tamil Nadu. He completed his B.Sc. (H) degree from MBB College Agartala and Post-Graduation in Chemistry from Tripura University. He has obtained his PhD degree from NIT Agartala. He has published nine papers in reputed National and International journals. Dr. Prasanta Sutradhar also participated and presented papers in over eight National and International Seminars and Conferences around the country. He has also been the Joint-Editor of one book.

Dr. Saheli Roy
Assistant Professor, Faculty of FST,
The ICFAI University, Tripura

Dr. Saheli Roy has joined on 22nd February, 2021, as Assistant Professor, Faculty of FST, The ICFAI University, Tripura.
Previously, she was at CSIR-Central Salt and Marine Chemical Research Institute, Bhavnagar as a research associate for her post-doctoral research. She has completed her Bachelor of Science from Bethune College under University of Calcutta and her Master of Science from West Bengal State University. She received my PhD degree from IIT Kharagpur. She has published nine journal publications in reputed International Journals. Dr. Saheli Roy also participated and presented papers in six National and International Seminars and Conferences around the country.

Dr. Ankita Chakraborty
Assistant Profcssor, Faculty of FST,
The ICFAI University, Tripura

Dr. Ankita Chakraborty has joined on 22nd February 2021, as Assistant Professor, Faculty of FST, The ICFAI University, Tripura.
She completed her Postdoctoral Research from CSIR-Indian Institute of Chemical Technology, Hyderabad, Telangana. She pursued her Doctoral Research in Synthetic Organic Chemistry from Tripura University, Suryamaninagar, Tripura. She received her M.Sc degree in Organic Chemistry from Tripura University , Suryamaninagar, Tripura. She received her B.Sc (Honours) degree in Chemistry from MBB College Agartala. She has published 11 papers in International Journals and also presented papers in National and International Seminars across the country.

EVENTS

Seminar on "Mole Day and International Year of Periodic Table"

Dr. Amitava Sharma

Dr. Tufan Singha Mahapatra

Dr. Subhadip Roy

The Department of Chemistry has organized a seminar on "Mole Day and International Year of Periodic Table" on 23rd October, 2019. Dr. Amitava Sharma, Dr. Tufan Singha Mahapatra and Dr. Subhadip Roy have highlighted the significance among common people about the importance of Mole Day and Periodic Table. Mole Day is celebrated annually on October 23 from 6:02 a.m. to 6:02 p.m., Mole Day commemorates Avogadro's Number (6.022×10^{23}), which is a basic measuring unit in chemistry and 2019 has been designated by UNESCO as the International Year of the Periodic Table (IYPT), marking the 150th anniversary of the Mendeleev periodic table, which is an iconic image and a vital tool to all who learn and work in science, at all stages of their learning and careers.

Dr. Biplob De

Seminar on "Recent Development of Chemistry in Medical World"

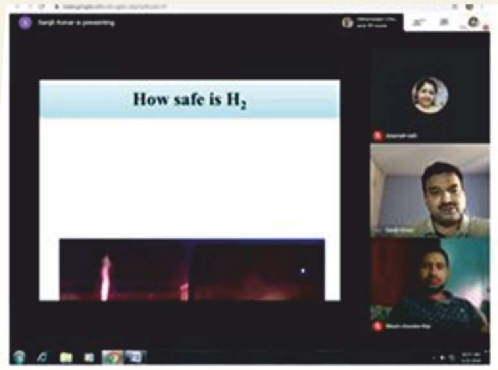
The Department of Chemistry has organized a seminar on "Recent Development of Chemistry in Medical World" on 14th November, 2019. Dr. Biplob De, Associate Professor of the Regional Institute of Pharmaceutical Science and Technology, Abhoynagar, Agartala, has shared his knowledge in the field of chemistry in medical world.

Seminar on "Aspects of Membrane Filtration Technology"

Dr. Nirmal Kumar Saha

The Department of Chemistry has organized a seminar on "Aspects of Membrane Filtration Technology" on 2nd March, 2020. Dr. Nirmal Kumar Saha, scientist from CSMCRI, has shared his knowledge in the field of membrane chemistry and polymers relating water treatment processes. He has discussed on sea-water harvesting, ground water purification and sewage water treatments.

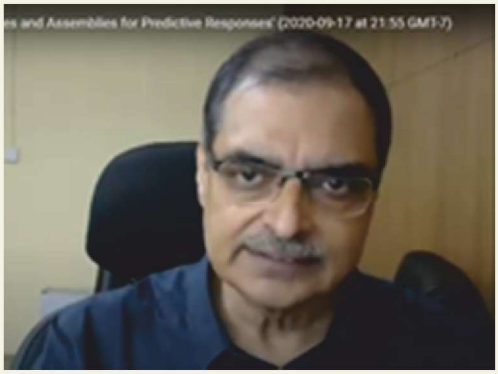
Webinar on "Multifunctional MOF as an Inclusive Molecular Sensor and Guest Responsive Proton Conductor"



Prof. (Dr.) Sanjit Konar

The Department of Chemistry has organized a webinar on "Multifunctional MOF as an Inclusive Molecular Sensor and Guest Responsive Proton Conductor" on 21st May, 2020. Prof. Sanjit Konar from IISER Bhopal has shared his knowledge on the recent advances in the field of Metal-Organic framework (MOF) type compounds in terms of synthesis and applications. Students of B.Sc. and M.Sc. Chemistry have participated in this webinar.

Webinar on "Purpose-built Molecules and Assemblies for Predictive Responses"



Prof. (Dr.) Amitava Das

The Department of Chemistry has organized a webinar on "Purpose-built Molecules and Assemblies for Predictive Responses" on 18th September, 2020. Prof. Amitava Das from IISER Kolkata has discussed on synthesis of various nanostructured molecules and their applications in the field of drug carrier and release.

Webinar on "Synthesis and Analysis Using Advanced Flow Chemistry"

Prof. (Dr.) Thomas Wirth

The Department of Chemistry has organized a webinar on "Synthesis and Analysis Using Advanced Flow Chemistry" on 20th October, 2020. Prof. Thomas Wirth from Cardiff University, UK has discussed on synthesis using advanced flow chemistry for different types of organic reactions. Students of B.Sc. and M.Sc. Chemistry have participated in this webinar. Faculty members have also joined in this webinar.

Celebration of National Science Day, 2020

Felicitation of Dr. Alok Satpathy by Dr. Priyangshu Rana Borthakur

Exhibition of Science Model

The ICFAI Science School has celebrated National Science Day, 2020 on 28th February, 2020. National science day have been celebrated since 1987 in India remarking the invention of Raman Effect to promote science and technology in society. The theme for this year is "Women in Science". We have celebrated through various science related activities and competitions involving young minds. Our DEAN of Science, Dr. P. R. Borthakur delivered a highly motivational speech mentioning the history of science day, its importance pointing out each and everyone's roles and duties towards society. A short and interesting biography of the eminent scientist C. V. Raman was shared with the audience to motivate them to stay on the right path of science and fight superstition in society. Our chief guest Dr. Alok Satpathy has explained the difference between science and technology nicely. His reminded us of the massive development over recent years in Tripura as well as in India and abroad. Dr. Beauty Pandey from the department of Physics, has delivered lecture on "Beyond Marie Curie: exemplary women who created history in science". She discussed about the contribution of the renowned woman scientist. Dr. Tufan Singha Mahapatra from the department of Chemistry, has discussed on "Women of The Periodic Table".

Swami Hitakamananda

Webinar on "How to move forward in life at this pandemic situation and how to remain positive and happy"

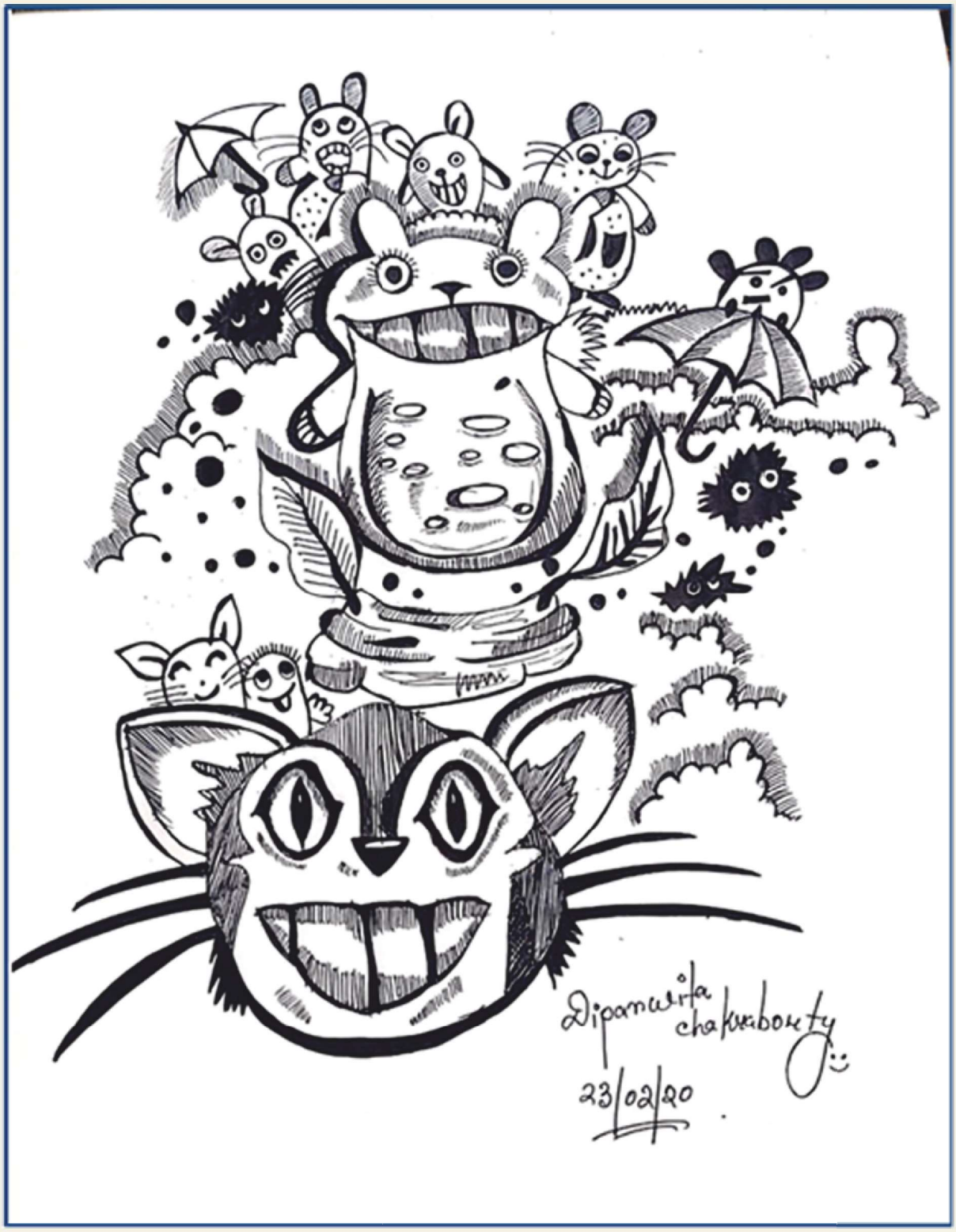
The ICFAI Science School has organized a webinar on **"How to move forward in life at this pandemic situation and how to remain positive and happy"** on 10th September, 2020. Swami Hitakamananda from Ramakrishna Mission, Shillong has shared his knowledge. The online learning is just one type of "distance learning" and it takes place across distance and not in a traditional classroom. Students of B.Sc. and M. Sc. Chemistry have participated in this webinar.

Extracurricular Activity:

Students of Department of Chemistry, ICFAI University are very much active in extracurricular activities. For overall development of a student, curriculum is not only the criteria. The holistic growth and as well as to develop the various facts of personality develops by these kind of activity. This year, during the critical situation of epidemic our students have participated in many competitions and got success. Students of B.Sc and M.Sc of the Department of Chemistry have participated in various webinars actively.

No.	Name of the student	Course	Participated in	Position Secured
1.	Dipanki Paul	M.Sc	Poster presented in National Science -2020 conducted by ICFAI University	Secured 2nd position for her excellent effort.
2.	Sagarika Paul	M. Sc.	recitation competition held in the month of March, 2020 at The ICFAI University Tripura	Secured 3rd position for her excellent efforts
3.	Nikita Chakraborty	B.Sc	Participated in National-E quiz competition conducted by ICFAI University	Scored 60% marks.
4.	Nikita Chakraborty	B. Sc.	Participated in E quiz in chemistry conducted by P.K.N. Arts and Science college	-
5.	Dipanwita Chakraborty	B.Sc	Participated in a drawing competition conducte by Saatatya Foundations	Secured 1st position for her excellent effort.
6.	Snehabrata Dasgupta	B.Sc	Participated in National Science -2020 conducted by ICFAI University	Secured 1st position for his excellent effort.
7.	Sachlang Debbarma	B.Sc	Participated in Casual Kokborok Dance, Lebang Traditional Dance and Singing and dancing together, ICARIA-2K20, ICFAI University.	-
8.	Nelson Debbarma	B.Sc	Participated in 'Mamita Dance' in ICARIA-2K20, ICFAI University.	-
9.	Mousumi Debbarma	B.Sc	Participated in 'Modern Dance' in ICARIA-2K20, ICFAI University.	-
10.	Somnath Saha	B.Sc	Volunteer in both of crowd management and creativity & cultural committee ICARIA-2K20, ICFAI University.	-

Dipanwita Chakraborty, a B.Sc Chemistry 2nd year (3rd semester) student was awarded 1st prize in an online art competition on the theme 'I am a lockdown hero' organized by Saatatya Foundations (Silchar, Assam) on 10th April, 2020.



Three of the 2nd year B.Sc Chemistry students participated in the Annual Techno-Cultural Fest, ICARIA-2K20 held on 19th-22nd February, 2020. The details are following: Sachlang Debbarma performed in three events viz. Casual Kokborok Dance, Lebang Traditional Dance and Singing and dancing together. Nelson Debbarma and Mousumi Debbarma participated in 'Mamita Dance' and 'Modern Dance', respectively. Somnath Saha was part of crowd management and creativity & cultural committee.

NOTABLE INTERNSHIP PROJECTS

List of students from B.Sc. who have completed CSIR-SRTP 2020:

No.	Name of the student	Institute	Topic
1.	Nikita Chakraborty	CSIR-NEIST	Insilico modeling of brusatol derivatives for the anti-malarial property

List of students from M.Sc. who have completed CSIR-SRTP 2020:

No.	Name of the student	Institute	Topic
1.	Sanuki De	CSIR-NEIST	Polyherbal formulation for the treatment of the muscular dystrophy
2.	Nandita Das	CSIR-NEIST	Metal Carbonyl
3.	Dipanki Paul	CSIR-NEIST	Analysis of drug in various disease
4.	Banasree Bhattacharya	CSIR-NEIST	Selective Catalytic Oxidation of Cyclohexane

Summer Internship Programme

IP Report: Summer internship project is the integral part of our B.Sc. and M.Sc. curriculum. Students of Department of Chemistry are doing their IP during the summer holidays and tenure is 45 days. Students can bag an internship through various means since our University gives ample opportunities to the students to interact with some prestigious institutes of India. During their internship the students have to submit a weekly report to their respective mentor and after the completion of their internship project students have to submit a final report. Internship project presentation is also conducted for the students. This year as a pandemic situation is going on, online internship projects has been arranged. Our students have done their internship projects from IIT Bombay (FOSSEE). They have done several computers related projects such as introduction to computers, Linux, C/C^{++} etc. Some of our B.Sc. and M.Sc. students have done their internship project from CSIR-NIEST under CSIR-SRTP-2020. Students are successfully completed the projects and awarded with certificates.

Dr. Tufan Singha Mahapatra, Assistant Professor, Department of Chemistry, ICFAI Science School has presented a poster on the topic **"Lanthanide and Lanthanide-Iridium Doped Supramolecular Gels with Tunable Luminescence Including Near White-Light Emission and Stimuli-Responsive Behaviour"** at Modern Trends in Inorganic Chemistry MTIC-XVIII, IIT Guwahati, Guwahati held from December 11-14, 2019.

Abstract of the Presentation:

Light-emitting materials have attracted enormous engrossment in recent years in the design of advanced functional materials due to their potential applications in electroluminescent devices andsensors.[1] Herein, light-emitting metallogel systems are developed using self-assembled Ln(III)-complexes (Ln(III) = Eu(III) and Tb(III)) of 4′-p-fluorophenyl-2,2′:6′,2″-terpyridine (L-F) and 4′-p-chlorophenyl-2,2′:6′,2″-terpyridine (L-Cl) ligands. The luminescence of these metallogels could be tuned over a wide spectrum. A near-white light emission (CIE coordinates: (0.31, 0.36) and (0.34, 0.36)) was achieved by controlling the [L-X] (X= F, Cl)/[Eu(III)]/[Tb(III)] stoichiometry. Adopting an alternate strategy, near white light emission was also achieved using metallogel derived from Eu•L-F-Ir (CIE coordinates: 0.28, 0.35) and Eu•L-Cl-Ir (CIE coordinates: 0.31, 0.35). For this, a blue emissive $[Ir^{III}(F_2ppy)_2(biimid)]PF_6$ complex was used along with Eu(III)-terpyridine gel systems (red emissive component). Eu•L-F, Tb•L-F and Eu•L-F-Ir (1 wt%) could also be incorporated into poly(methyl methacrylate) (PMMA) polymer matrix for developing transparent red, green and white luminescent PMMA films with excellent UV-shielding properties. Moreover, dynamic nature of Ln–N(terpyridine) coordination bonds was utilized for demonstrating the chemo/ vapor-responsive behaviour of the lanthanide-based gel systems, which could offer a suitable pathway for future engineering of stimuli-responsive gel materials.[2]

References

(1) D. E. Barry, D. F. Caffrey and T. Gunnlaugsson, *Chem. Soc. Rev*, 2016, **45**, 3244-3274

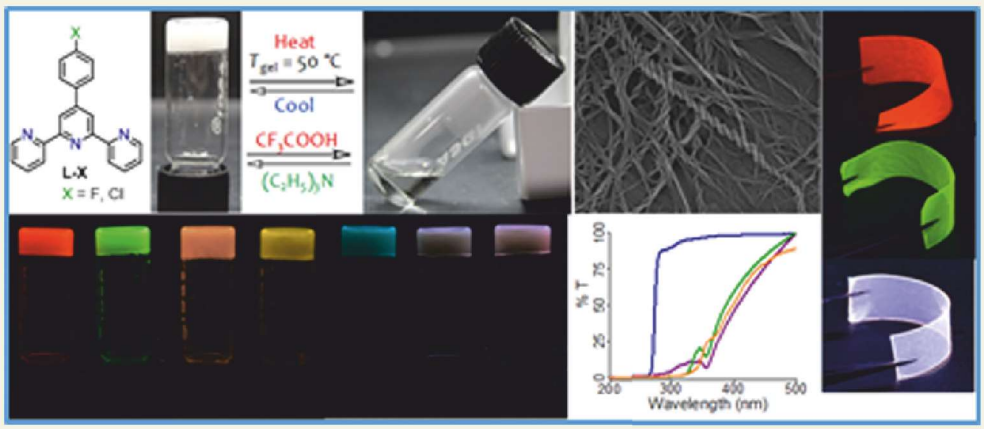
(2) T. Singha Mahapatra*, H. Singh, A. Maity, A. Dey, S. K. Pramanik, E. Suresh and A. Das*, *J. Mater. Chem. C*, 2018, **6**, 9756-9766

Bilash Chandra Roy, a pass out M.Sc Chemistry student (2020) has presented a paper on the topic **'Role of Science Subjects in Higher Education for the development of Indigenous Communities and Its Impact in Society'** in a 2 Days National Seminar held at Pragya Bhavan, Agartala from January 10-11, 2020. The work was carried out jointed by him and Dr. Swarnali Nath Choudhury, Associate Professor and HOD Chemistry, ICFAI Science School. The seminar was organized by Women's Polytechnic, Hapania in collaboration with Tribal Research & Cultural Institute, Department of Tribal Welfare, Government of Tripura on the theme 'The Status of Tribal Education in Degree & Above Degree Level: Problems & Solutions with Special Reference to Tripura."

Abstract of the Presentation:

Culture of Tripura is very much similar to those native indigenous tribal people of Northeast. Tripura is characterised as a small portion existing in plain regions by mainstream Indian culture and is influenced by spearheaded Bengali traditions dominating over indigenous tribal traditional.

Figure:



As per 2011 census, 31.8 % of the total state population comprises of schedule tribe population. There is only 1.54 % of total schedule tribe literates having educational level of graduates and above, as per census 2011 data. From the referred data it can be assumed that a major portion of the tribal population are below minimum graduation educational qualification compared to other communities, but it is observed that their food habit is very scientific. For sustainable health and wellness, good nutritional food habit is very important.

The present paper attempts to highlight the traditional food corresponding to the lifestyle followed by the tribal people of Tripura and diseases suffered by them. It has been observed that the diseases originated from food and human lifestyle are very less compared to others community.

In this paper, our primary objective is to explore the nutritional value involving the scientific food processing and hence motivate the youths from tribal communities to take minimum education related to science subjects like Chemistry, Biology, Environmental science, etc so that their good scientific food habits may be explored further, recorded and maintained. Therefore, a healthy society can be formed. Proper awareness in this regard may also reduce the intensity of inclination towards the drug and other deadly habits.

Dr. Swarnali Nath Choudhury, Associate Professor and HOD Chemistry, ICFAI Science School acted at a capacity of Judge of the Inter-Departmental poster competition on Union Budget 2020-21 held on 10.02.2020 at The ICFAI University Tripura.

Dr. Swarnali Nath Choudhury, Associate Professor and HOD Chemistry has presented a paper entitled as **"Role of food antioxidants present in certain plants of Tripura State in protection from Covid 19"** in "International e-Poster Conference on Current Outlook in Material Science and Engineering (COMSE-2k20)" from May 15-16, 2020. The e-Poster conference was organized by Bodoland University in Association with Tripura University, ADP College, Nagaon & MIT Aurangabad on Facebook

Three M.Sc Chemistry 2nd year (3rd semester) students Dipanki Pal, Banasree Bhattacharya, and Sanuki De won 2nd prize in a poster presentation competition organized on the occasion of National Science Day (NSD) by ICFAI Science School, IUT on 28.02.2020.

Bilash Chandra Roy, a pass out M.Sc Chemistry student has participated in the Science leadership workshop organized by Central University of Punjab, Bathinda, India from June 22-28, 2020. The program included 26 talks by academy fellows and leading science leaders and covered topics such as mentoring, collective leadership, problem-solving, conflict-resolution, time management, women in science, active listening, cross-cultural communication, lab culture and so on.

SCIENTIFIC PUBLICATIONS

All the faculty members from Chemistry Department are devoted to Research related activities and during this course of time (October 2019- October 2020), the faculty members published total 12 research articles in reputed international journals and also published one Patent. Department of Chemistry, ICFAI University Tripura is ranked No. 22 (by count), among all the Chemistry Departments under any Indian institutes, according to Nature Index(Link:https://www.natureindex.com/institution-outputs/generate/Chemistry/countries-India/academic/n_article).

In the span of October, 2019 to October, 2020 the faculty members have published a lot of international publications involving wide collaborations nationally as well as on international level. One book chapter has also been published by the HOD, Department of Chemistry, Dr. Swarnali Nath Choudhury.

HOD, Department of Chemistry, Dr. Swarnali Nath Choudhury has published one book chapter titled 'Communication Skill and Employability of Tribal Students of Tripura in PAN India' in the book 'Tribal Education In Search of Quality' published by Tribal Research and Cultural Institute, Govt. of Tripura

Dr. Tufan Singha Mahapatra has published three international research articles (in SCI and Nature Indexed journals) and published one patent. He has fruitful collaboration in national and international level institutes: University of Oxford (UK), University of Sheffield (UK), University of North Carolina (USA), CSIR-Central Salt & Marine Chemicals Research Institute (Gujrat), University of Hyderabad (Hyderabad), and Indian Institute of Science Education and Research Kolkata (West Bengal).

Dr. Subhadip Roy has published a total of seven research articles in reputed journals during last one year. He has collaborated successfully with researchers from various prestigious institutions at International level [Max Planck Institute for Chemical Energy Conversion (Germany), Purdue University (USA), École polytechnique fédérale de Lausanne (Switzerland), University of Münster (Germany), Wrocław University (Poland), University of Balearic Islands (Spain)] as well as National level [St. Xavier's College (West Bengal), Jadavpur University (West Bengal), IISER Bhopal, Bir Bikram Memorial College (Tripura), Bineswar Brahma Engineering College (Assam) and Govt. Degree College (Tripura)] during the course.

Dr. Satyajit Mondal has published one research article in international journal

Dr. Amitava Sharma has published one research article in international journal.

The Department of Chemistry produced a total of twelve international publications during October 2019 to October 2020. The glimpse of these outstanding scientific achievements are provided for the young enthusiasts in the department.

BOOK CHAPTER

Dr. Swarnali Nath Choudhury, Associate Professor and HOD Chemistry has written a book chapter titled 'Communication Skill and Employability of Tribal Students of Tripura in PAN India' in the book **'Tribal Education In Search of Quality'** published by Tribal Research and Cultural Institute, Govt. of Tripura (ISBN No: 978-93-86707-33-8, Edited by Dr. Surojit Sen Gupta, page no 205-211).

Abstract: Development of a State depends on the ability of its citizens to generate employment and to get employed. For entrepreneurs as well as for job seekers, communication skill is the key quality. There are 19 main categories of tribes in Tripura speaking different languages, but the majority of them are from the Tripuri community and speak the Kokborok language. But it is a matter of great concern that the kokborok language has no script of its own and is written either in Bengali or in Roman script. As per Census 2011 Data, 31.8% of the total State population comprises scheduled tribe population. Language is one of the main causes of the problem in adopting means of livelihood among the tribes of Tripura. It is apparent that the predominance of language in the small state like Tripura plays an important role in the field of jobs related to administration, politics, culture or education. There is only 1.54% of total Scheduled tribe literates having educational level of graduates and above, as per Census 2011 Data.

The present book chapter attempts to highlight the gap in communication skill among the Scheduled tribe population of the State in availing comfortable means of livelihood or upgrading standard of living.

The objectives of this study were to (a) identify gaps in the existing undergraduate-level (b) assess the communicative abilities of students, (c) Employability of the graduates and (d) suggest some remedial measures to improve students' language proficiency.

Keywords- Communication skill, employability, literacy rate, tribal students, script.

PATENT DETAILS

Application Number: 201811029277 (Publication Date: 07/08/2020)
Title: Transparent and Flexible Poly(Methyl Methacrylate) Composite Films With UV-Shielding Performances and Process For Preparation Thereof
Inventors: **Tufan Singha Mahapatra**, Sumit Kumar Pramanik and Amitava Das

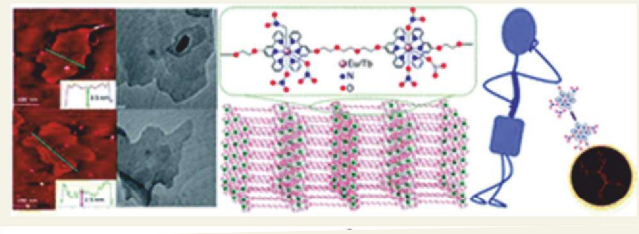
Summary: UV radiation is liable for the discoloration of pigments, dyes and yellowing of plastics and papers, sun burnt skin, and other problems related with UV light. Plastics, paints, wood and cosmetic manufacturers have a great interest in offering products that remain unaltered for long periods of time under severe UV-light exposure conditions. The present invention relates to the preparation of a transparent flexible Polymethylmethacrylate (PMMA) film containing low amounts of general Formula I with UV-blocking properties as described. More particularly, the present invention relates to a compound of general Formula I, process for preparation thereof and use of the same for making UV-blocking PMMA films. The present invention further relates to a kit of UV filters in sunscreens, comprising compound of general Formula I.

PUBLICATIONS

Singha Mahapatra, T.;* Dey, A.; Singh, H.; Hossain, S. S.; Mandal, A. K.;* Das, A.* Two-dimensional lanthanide coordination polymer nanosheets for detection of FOX-7. *Chemical Science*, **2020**, *11*, 1032-1042 DOI: https://doi.org/10.1039/C9SC05403K.

Publisher: Royal Society of Chemistry,
Impact factor: 9.346

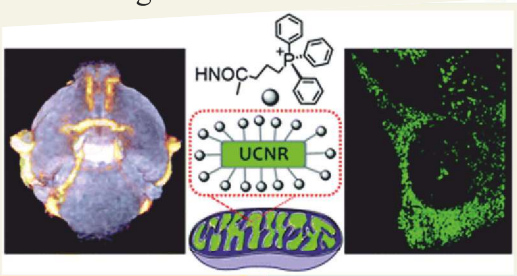
Summary: Luminescent lanthanide ions, Eu(III) or/and Tb(III), as well as a bis-terpyridine ligand (L), used in this study as the building blocks for the synthesis of archetypical layered structure of coordination polymers (CPs) (L•Eu / L•Tb). 2D-nanosheets achieved through exfoliation of the layered precursor of CPs in a suitable solvent system following a sonication-assisted strategy. These nanosheets exhibit lateral sizes on the micrometer scale (0.3−1 μm) and ultrathin thickness of 2−6.5 nm. The insensitive nature of FOX-7 makes it a key component for the development of low vulnerable high explosive compositions for further application in weaponry. The growing demand of FOX-7, for use as a suitable replacement of conventional explosives is of serious concern to human security. Achieving the rapid and efficient detection of this unexplored explosive is a challenging task. In the present study, the developed luminescent nanosheets used for the first time at micromolar level detection of FOX-7 both in solution and solid-state. A visually distinct color change of the nanosheets from red (L•Eu) and green (L•Tb) to colorless witnessed upon UV light irradiation during detection process.



Singh, H.; Sreedharan, S.; Oyarzabal, E.; **Singha Mahapatra, T.;** Green, N.; Yen-Yu Ian, S.; Das, M.; Thomas, J. A.; Pramanik, S. K.; Das, A. Mitochondriotropic Lanthanide Nanorods: Implications for Multimodal Imaging. *Chem. Commun.*, **2020**, *56*, 7945-7948 DOI: https://doi.org/10.1039/D0CC02698K.

Publisher: Royal Society of Chemistry,
Impact factor: 5.996

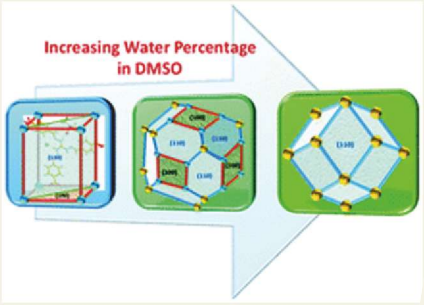
Summary: Two-photon active mitochondriotropic lanthanide nanorods has been developed for high resolution fluorescence imaging. The presence of Gd in the nanorods also enabled us to utilize this material as a T1–T2 dual-mode contrast reagent for recording magnetic resonance images of the mouse brain.



Dey, A.; Maity, A.; **Singha Mahapatra, T**.; Suresh, E.; Mandal, A. K.; Das, A. Tuneable Hierarchical Self-Assembly of C3-Symmetric Triaminoguanidium-derivative into Rhombic Dodecahedral Morphology *CrystEngComm*, **2020**, *22*, 5117-5121
DOI: https://doi.org/10.1039/D0CE00909A.

Publisher: Royal Society of Chemistry, **Impact factor:** 3.117

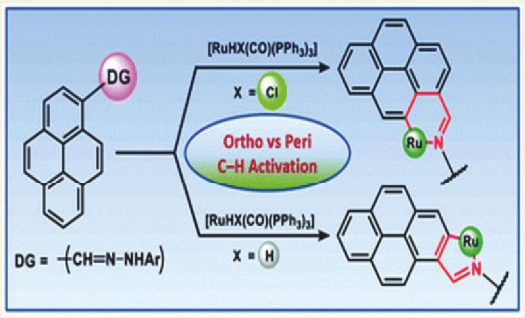
Summary: A crystalline rhombic dodecahedral shape with a size up to 23.7 μm via the self-assembly of a C3-symmetric triaminoguanidinium derivative has been reported. Structural evidence confirms the preferential occupancy of the solvent molecules in the (110) crystal facet over (100), favouring the growth direction for realizing such morphology.



Dinda, S.; Patra, S. C.; **Roy, S**.; Halder, S.; Weyhermüller, T.; Pramanik, K.; Ganguly, S. Coligand driven diverse organometallation in benzothiazolyl-hydrazone derivatized pyrene: ortho vs. peri C–H activation. *New J. Chem.* **2020**, *44(4)*, 1407-1417 DOI: 10.1039/C9NJ05088D.

Publisher: Royal Society of Chemistry,
Impact factor: 3.069

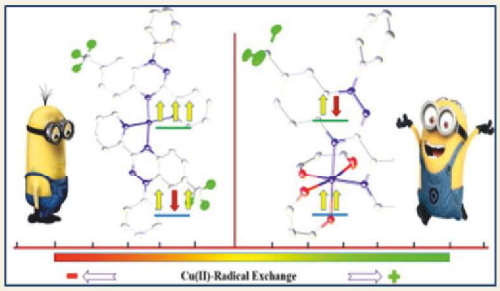
Summary: In this article, methods of divergent aromatic C–H activation at both ortho and peri positions in polyaromatic hydrocarbons have been successfully demonstrated by suitable variation of the coligand.



Sidharth, T. N. S.; Nasani, R.; Gupta, A.; Sooraj, B. N. S.; **Roy, S**.; Mondal, A.; Konar, S. Reversal of magnetic exchange coupling between copper(II) and Blatter radical depending on the coordination environment. *Inorg. Chim.* Acta **2020**, *503*, 119395 DOI: https://doi.org/10.1016/j.ica.2019.119395.

Publisher: Elsevier, **Impact factor:** 2.433

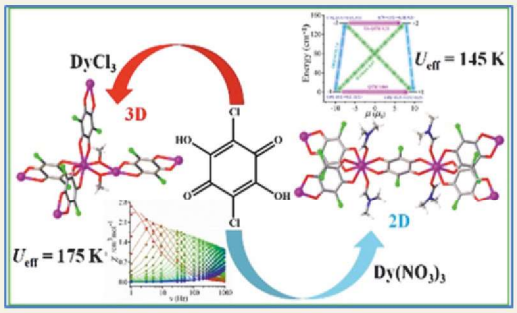
Summary: With the aim of developing potential molecular magnetic materials, based on paramagnetic metal complexes, two new copper(II)-benzotriazinyl radical complexes. $[Cu(L1')(hfac)_2]$ (**2a**) and $[Cu(L1')_2](ClO_4)_2$.MeOH (**2b**) (where L1′= 1-phenyl-3-(pyridin-2-yl)-7-(trifluoromethyl)-1,4-dihydrobenzo[e][1,2,4]triazine) were synthesized and characterized by various physicochemical techniques. The complex **2b** is the first report of Blatter radical system based on the formation of a 1:2 metal: radical coordination complex. Complex **2a** exhibits ferromagnetic interaction between Cu(II) and radical along with antiferromagnetic interactions between the radicals. In complex **2b**, exchange interaction between copper and radical as well as intramolecular radical…radical interactions are weak antiferromagnetic in nature, with no intermolecular interactions between radical moieties.



Mondal, A.; **Roy, S**.; Konar, S. Remarkable Energy Barrier for Magnetization Reversal in 3D and 2D Dysprosium-Chloranilate-Based Coordination Polymers. *Chem. Eur. J.* **2020**, *26(40)*, 8774-8783 DOI: 10.1002/chem.202000438.

Publisher: Wiley-VCH, **Impact factor:** 5.16.

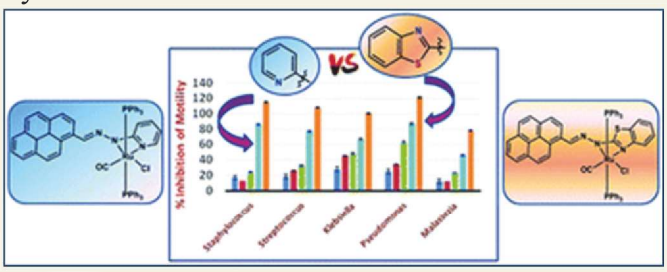
Summary: Dysprosium(III) chloranilate (Cl_2An) based coordination polymers (CPs) $[\{Dy(Cl_2An)_{1.5}(CH_3OH)\}\cdot 4.5H_2O]_n$ (**1**) and $[Dy(Cl_2An)_{1.5}(DMF)_2]_n$ (**2**) were synthesized and characterized. Magnetic investigations revealed field-induced slow magnetic relaxation behavior in both CPs. The larger ground-state QTM in **2** compared with **1** results in a higher energy barrier for magnetization reversal in the latter.



Dinda, S.; Sultana, T.; Sultana, S.; Patra, S. C.; Mitra, A. K.; **Roy, S.**; Pramanik, K.; Ganguly, S. Ruthenocycles of benzothiazolyl and pyridyl hydrazones with ancillary PAHs: synthesis, structure, electrochemistry and antimicrobial activity. *New J. Chem.* **2020**, *44(26)*, 11022-11034 DOI: 10.1039/D0NJ01447H.

Publisher: Royal Society of Chemistry, **Impact factor:** 3.069

Summary: In this study, the antimicrobial activity of ruthenocycles of pyridyl and benzothiazolyl hydrazones has been investigated. The study established that such activity is comparatively higher for the complex containing benzothiazolyl hydrazone.

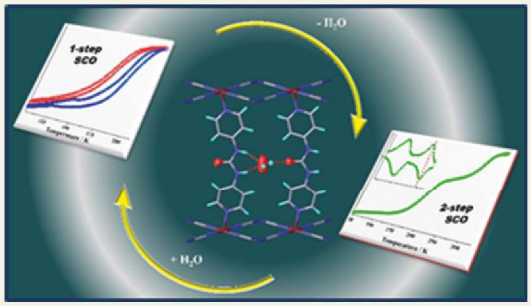


Mondal, D. J.; **Roy, S.**; Yadav, J.; Zeller, M.; Konar, S. Solvent-Induced Reversible Spin-Crossover in a 3D Hofmann-Type Coordination Polymer and Unusual Enhancement of the Lattice Cooperativity at the Desolvated State. *Inorg. Chem.* **2020**, *59(18)*, 13024-13028 DOI: 10.1021/acs.inorgchem.0c02240

.

Publisher: American Chemical Society (ACS), **Impact factor:** 4.825

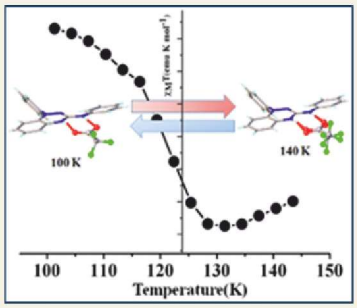
Summary: A new 3D Hofmann-type coordination polymer, $[Fe(dpyu)\{Pt(CN)_4\}]\cdot 9H_2O$ (dpyu= 1,3-di(pyridine-4-yl)urea), exhibits a single-step SCO property with a 9 K thermal hysteresis loop. Moreover, reversible changes between two-step and one-step SCO behaviors were observed upon the desorption/resorption of the solvent water molecules. The compound represents a rare example in 3D Hofmann-type coordination polymers where guest solvent removal positively impacts lattice cooperativity.



Paul, A.; Nasani, R.; Mondal, A.; Roy, S.; Vela, S.; Konar, S. Reversible Magnetic Transition in a Bench-Stable Radical Cation Triggered by Structural Transition in the Magnetically Silent Counteranion. *Cryst. Growth Des.* **2020**, *20(10)*, 6296-6301 DOI: 10.1021/acs.cgd.0c00881.

Publisher: American Chemical Society (ACS), **Impact factor:** 4.089

Summary: Reversible magnetic transition triggered by the disorder-order transformation of the counter-anion of the first Blatter radical cation has been observed. The thermal motion of the counter-anion manifest itself in the intermolecular short contacts, solid-state packing, and the lattice reorganization energy required for this reversible magnetic bistability.



Adhikari, S.; Bhattacharjee, T.; Das, A.; **Roy, S.**; Daniliuc, C. G.; Zaręba, J. K.; Bauza, A.; Frontera, A. On the supramolecular properties of neutral, anionic and cationic cadmium complexes harvested from dithiolate-polyamine binary ligand systems. *CrystEngComm* **2020**, DOI: 10.1039/D0CE01233E.

Publisher: Royal Society of Chemistry, **Impact factor:** 3.117

Summary: Three Cd(II) complexes $[Cd(i\text{-}mnt)(DMSO)_2]_n$ (1), $\{[Cd(i\text{-}mnt)pn)]\cdot 2H_2O\}$ (2), and $[Cd(i\text{-}mnt)_3][Cd(tren)_2]_2$ (3) harvested from 1,1-dicyanoethylene-2,2-dithiolate ($i\text{-}mnt^{2-}$) and polyamine ligand systems have been designed, synthesized and structurally characterized. Single-crystal X-ray diffraction analysis reveals that these complexes exhibit diverse supramolecular architectures primarily thanks to different coordination modes adopted by ($i\text{-}mnt^{2-}$) and polyamine ligands, but also owing to their disparate

conformational flexibility. Indeed, polyamines (pn = 1,2-diamino propane, tren = diethylenetriamine) and (i-mnt^{2-}) ligands demonstrate the impact of directing effect of ligands' spatial extension, binding abilities and flexibility on the resulting structures of complexes.

Mondal, S.; Banerjee, A.; Das, B. Spectroscopic and interfacial investigation on the interaction of hemoglobin with conventional and ionic liquid surfactants. *J. Mol. Liq.* **2020**, *301*, 112450 DOI: 10.1016/j.molliq.2020.112450

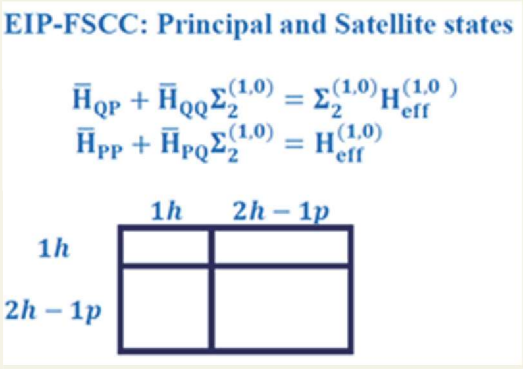
Publisher: Elsevier, **Impact factor:** 5.065

Summary: A comprehensive investigation on the interactions between equine heart haemoglobin and different surface active agents including ionic liquid surfactants (ILs) was performed in aqueous buffer (pH = 7.4) by ultraviolet-visible and fluorescence spectroscopic techniques coupled with tensiometry. The surface active agents include a cationic surfactant cetyltrimethylammonium bromide (CTAB), three anionic surfactants sodium *N*-dodecanoylsarcosinate (SDDS), sodiumdodecylbenzene sulfonate (SDBS), sodium cholate (NaC), a non-ionic surfactant N-decanoyl-*N*-methylglucamine (Mega 10), and two ILs 1-hexadecyl-3-methylimidazolium chloride (C_{16}MeImCl), 1-butyl-3-methylimidazolium octylsulfate (C_4MeImOS). In particular, surfactant-induced conversion of the iron coordination and spin states of hemoglobin was monitored by the shifts of the Soret peak. Fluorescence studies indicated exposure of the tryptophan and tyrosine residues of hemoglobin to polar environment when surface active agents were introduced, the relative contributions of these amino acids to the fluorescence intensity being different for different surfactants. Hemoglobin was found to be unfolded in surfactant solutions. Unfolding of haemoglobin was found to be more pronounced in presence of ionic surfactants than in presence of the non-ionic one.

Sharma, A.; Chattopadhyay, S.; Sinha, D. Exploring the spectroscopic constants of $^2\Pi_u$, $^2\Sigma_u^+$ (main and a satellite) and $^2\Pi_g$ states of N_2^+ ion using the Fock-space coupled-cluster with eigenvalue independent partitioning. *Mol. Phys* **2020**, *118*, e1774673 DOI: 10.1080/00268976.2020.1774673

Publisher: Taylor & Francis,
Impact factor: 1.704

Summary: The Fock-space coupled-cluster (FSCC) method appears as a robust computational scheme if reformulated within the eigenvalue independent partitioning framework (EIP-FSCC) which efficiently deals with the intruder states that cause convergence problems in its standard effective Hamiltonian format. Within such a reformulation not only the so-called main (principal) root of the effective Hamiltonian version are attainable, but also the alternative satellite roots appear from the higher sectors of the corresponding matrix (that is properly constructed) upon its direct diagonalization. Selective spectroscopic constants of $^2\Pi_u$, $^2\Sigma_u^+$ (main and satellite), and $^2\Pi_g$ states of N_2^+ ion have here been estimated using the EIP-FSCC by exploiting various truncation schemes of cluster operators (EIP-FSCCSD and EIP-FSCCSDτ). EIP-FSCCSDτ includes the set of full connected triple excitation operators for the ionized states where as perturbative is considered by CCSDT1-a approximation. This work indicates that the EIP-FSCCSDτ , compared to EIP-FSCCSD scheme, is capable of providing nice agreement with experiment provided an adequate basis set is used.



STUDENTS' SPEAK

"The current circumstances we live are unknown to us all and they bring a lot of uncertainties and new challenges with them. Even in these desperate times the involvement of our professors of our IUT Tripura is really recommendable. We are provided with regular online classes, Lectures so that there is no loss in our studies and with proper doubt clearing session. Thanks again to my University for the efforts in online format... It's really interesting".

- Dipanwita Chakraborty
B.Sc.Chemistry(2nd Year)

Sharing of Experience by Arpita Debnath, student of B. Sc Chemistry. Online class are getting better. Thanks the ICFAI University.

- Arpita Debnath
B.Sc.Chemistry (2nd Year)

As we are all aware, due to Covid 19 university is closed. But in this pandemic we are provided by high quality of online classes. Our professors also give us opportunity to clear out our confusion which is very acceptable for us. Thank u ICFAI University Tripura.

- Dwiptanu Paul
B.Sc. Chemistry (2nd Year)

A wonderful thanks to ICFAI University for arranging online classes though Google meet and other ways to communicate with students like Google class room, zoom etc. We are able to continue our learning our lessons, from home during this COVID 19 Problem.

- Supra Barsha Chakma
B.Sc.Chemistry (2nd Year)

A big thanks to ICFAI university Tripura for arranging online classes through Google meet, and other ways to communicate with the students. We are able to continue learning our lessons from home during this lockdown.

- Ribilin Thongnibah
B.Sc. Chemistry (2nd Year)

Experience of studying in this lockdown with ICFAI University is worth praising. "It is pure professionalism that the faculty has coped up well with the online teaching and has kept a good communication with the students in order to help us in every way possible in this pandemic" Thank You

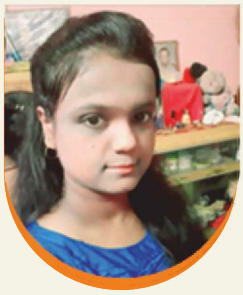
- Saljora Debbarma
B.Sc.Chemistry (2nd Year)

ICFAI university is such a great university. It does not make any difficulty in studies during this pandemic situation. The faculty members are also quite helpful. Thank you ICFAI for being a part of my life.

- Debmita Chakraborty
B.Sc. Physics (2nd Year)

Due to COVID-19, we cannot go to our university. So it is very much effect to our studies. Due to this our university has developed a digital self-study portal, by which our faculty members provide us the study materials. From this online classes I became very much helpful in many ways such as we can clarify our doubts by the interaction with the faculties. So I like to thanks to our university for this online class. But at the same time, I am facing some problems also like the net issues and even sometimes charging problems also

- Anwesha Bhowmik
B.Sc. Physics (2nd Year)



Experience share by Parmita Das student of Bsc physics honours from ICFAI University Tripura-Thanks for launching digital learning portal and online classes so that we the students can continue our classes from home during this pandamic situation/lockdown.

- Parmita Das
B.Sc. Physics (2nd Year)

Experience sharing by Mamun Acharjee, a student of B.Sc Physics honours, about "ICFAI UNIVERSITY, TRIPURA" , As we all are aware, due to COVID-19 issues, Lock down is being implemented in Tripura upto 17th May 2020, due to which classes are suspended at our University. However, in order to ensure regular studies, our University has developed a digital self-study (Online classes), in which our faculty members provide digital course materials to students. I personally got benefitted a lot from this. I can access the materials any time at my convenience and clarify my doubts. Therefore, I would like to thank our University for this new implementation. So, we are very thankful to our ICFAI UNIVERSITY, TRIPURA.

- Mamun Acharjee
B.Sc. Physics (2nd Year)

I'm Joyasri Datta , From Bachalor of Science in Chemistry (H) , 5th semester student.
I remain grateful thank to the ICFAI UNIVERSITY, TRIPURA. My experience with this university for the last 2 years has been excellent. Efficient faculty members, Good infrastructure, modern study methods and all types of facilities available. I have learnt many things and my faculty members always support and encourage to enhance my skill and knowledge. And also the lab facilities are good.

- Joyasri Datta
B.Sc. Chemistry (3rd Year)

My experience with the ICFAI University Tripura for the last 2 years has been fantastic. The faculty members are so caring and supportive who leave no stone unturned to reach the satisfactory level of understanding of each and every student. The lab facilities compliments the fine infrastructure as well.

- Snehabrata Dasgupta
B.Sc. Chemistry (3rd Year)

My experience with ICFAI University Tripura for the last 2 years have been fantastic. The faculty members are so caring and supportive who leave no stone unturned to reach the satisfactory of understanding of each and every student. The lab facilities compliments the fine infrastructure as well

- Debarpita Deb
B.Sc. Chemistry (3rd Year)

CONTACT INFORMATION
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