

JANUARY - JUNE 2019

Best Chemistry Mini Projects

- 1H NMR spectroscopy (1st Prize)
- Synthesis & Characterization of CNT using Rice for the removal of Chlorine from water (1st Prize)
- Biogenic synthesis and characterization of CuO nanoparticles (2nd Prize)
- Water Quality analysis (2nd Prize)

INSIDE

- Idea Repository **1**
- Industry / R&D visit **1**
- Science Club **2**
- Sponsored Research Projects **2**
- MOOC Course , FDP , Workshop **2**
- External Institute Visit **2**
- Students projects **3**
- Mega and Mini Projects **3, 4**

Idea Repository:

Organised Idea Sci-Techathon 2019 event towards idea repository for core and basic science departments through a poster presentation competition for undergraduate and postgraduate college students from Bangalore and outside colleges. The event was floated for five important scientifically and socially relevant topics such as Environmental applications of Nanotechnology, Clean Bengaluru, Solutions to current energy crisis, IOT for disaster management and Technological applications of agriculture. About 25 enthusiastic student teams participated with excellent posters and interesting idea, and displayed amazing energy in explaining the technical details of their idea project.

Organizing and judging team

comprised of Drs. Chaitanya, Hegde, Tukaram, Prabhat, and Soma from BS, Drs. Iqbal and P. Ramesh from EEE, Drs. Jhansi, Jaykumar & Prof. Sherly from CSE, and Prof. Abhishek from TCE departments and coordinated well throughout the planning and conduction of the event under the supervision of Principal and Vice Principal of the college. Students have put in their



best thoughts to formulate idea and solutions to the statement problems and the winning team presented their idea project on development of completely biodegradable and environmental friendly sanitary napkins using natural fibres from fruits and other plant products. A cash prize of 10,000/- rupees was awarded for the winning team.

Industry/R&D visit:

Dr. Chaitanya had a discussion online with Mr. Suryaprakash Samudrala, Senior Engineer Corrosion, Kuwait on sponsorship and funding scope for optical sensor project for heavy metal detection in waste water and she got 25K as funds for execution of the ongoing project as a result of this discussion.

Dr. Chaitanya have visited ECSI office , IISC Bangalore and discussed with Mr. Rajeev Deekshit from

Pyrotechnologies, Bangalore (he is also member of ECSI) regarding scope of funding for catechol biosensor project for organic pollutant detection in waste water. Funding of 25K was obtained through this interaction.

Dr. Asha and Dr. Chaitanya has attended a two day Sensitization Workshop for Thrust Area "Urban & Rural Solid Waste including Plastic Waste" scheduled on 28th of February and 1st of March, 2019 at CIPE: IPT, Chennai.

This workshop was organized as a part of Second level of screening of the Concept note proposal entitled "Smart Building Blocks from Waste Materials: Products for Sustainable Infrastructure" submitted to Waste Management technologies (WMT) program of DST. The workshop formed a platform to showcase technology expertise of different individuals so as to enable collaborative research.

Prof. R.K. Ray (retired professor, IIT Kanpur) who is joining our institute as Distinguished Visiting Professor (DVP) under AICTE-INAE scheme for a year made his first visit on March 21, 2019. A group of faculty comprising Drs. Bijayani Panda, Vijayanand Kaup, Tukaram, Ram Das, S. S. Hegde, Sagar Baligdad and Dr. Chaitanya had a meeting with him looking



into the prospects of engaging with him on ongoing projects at COEs and scope of writing proposals to be submitted to funding agencies. For COE Materials Science, the ongoing projects on development nanocomposite catalysts and surface coating of textured honey comb structures for toxic automobile exhaust gas conversion is being looked into.

Department of Chemistry have organized HAL museum visit on 6th may 2019 with 46 students from CS, IS and



Science Club

- Department of Chemistry have conducted quiz on "Tech Quiz: Water Technology: Quality Analysis and Treatment" under Science club
- Department of Chemistry have organized Extempore on "Campus And Lab Safety Awareness" under



Sponsored Research Projects

Project Title : Optical Sensor for Heavy Metal detection in waste water - Dr. Chaitanya Lekshmi Indira (PI), Prof. E. S. Dwarakadasa (PI), Prof. Vinay B. K. (Co PI)

Total Grant : 25000

Agency name : Kuwait Oil Company, Duration : 1year

Project Title : Catechol Biosensor -

Dr. Chaitanya Lekshmi Indira (PI), Prof. E. S. Dwarakadasa (PI) Dr. B. Narsimhamurthy (Co PI) , Prof. Vinay B. K. (Co PI)

Total Grant : 25000

Agency name : Pyrotechnologies,

Duration : 1 year



MOOC course completed

Dr. Subhi B Konwar – Coursera – Introduction to Physical Chemistry

Dr. Priti Gupta – Coursera – Introduction to Molecular spectroscopy

Dr. Soma Das – Coursera – Introduction to Molecular spectroscopy

Dr. Fazlur Rahaman - Coursera – Introduction to Solar Cell

Dr. Manjunatha M – Coursera- General chemistry - concept development and application.

Dr. Prabhat Gautam -

Coursera – Introduction to Solar Cell

FDP completed

Dr. Soma Das and Dr. Subhi B Konwar have completed 5 days FDP on “Emerging trends on Chemical Science” organized by BMSIT, Banaglore on 19th – 23rd February 2019.

Workshop attended

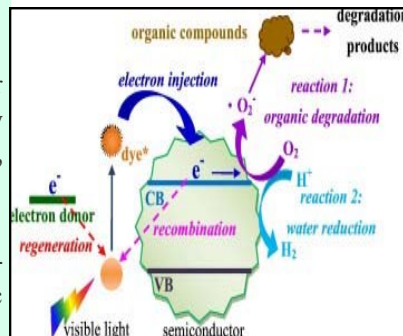
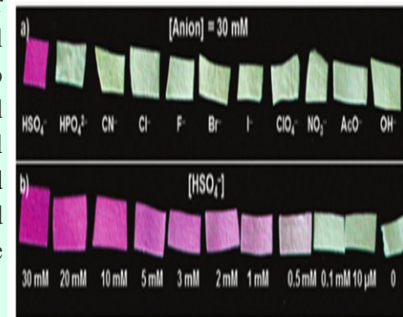
Dr. Priti Gupta have attended Two days workshop on “Environmental challenges in metal finishing” held at IISC Bangalore

External Institute Visit

Dr. Priti Gupta have visited prestigious Thapar Insitute of Engineering and Technology, Patiala to evaluate PhD viva entitled “Synthesis of Natural Fragrance, Pheromone and Bioactive Compounds” and to interact with the Professors.

Mega Projects :

1. Development of a water purifier model for chemistry laboratory - **Dr. Soma Das, Dr. Chaitanya L Indira**
2. Development of donor-acceptor small organic



Student Projects

• A project titled "Innovative application of colorimetric sensing for heavy metal detection in waster water" undertaken by Mageshwari K., Anushka Jemima and Rashmy T. was chosen for FAER-Mcfee scholarship scheme to be receiving Rs. 5000/- on successful completion of the project. The final presentation is scheduled to be held on

June 13, 2019. The project is also allotted a mentor, Prof. Srinivas T. who is a distinguished faculty at ECE department at Indian Institute of Science, Bengaluru.

• A team of ECE first year students, Zayeed Mohammed, Vibhav and Thirumalesh who worked on electronic

property studies of NiO-polymer nanocomposites for nanoelectronic applications won first place for Mini project from Chemistry department in the first semester. The project was guided by Dr. Chaitanya and Dr. Fazlur Rahaman and assisted by Mr. Rahul R.



Mini Projects

1. Biogenic Synthesis of ZnO nanoparticles using coffee extract for phtocatalytic degradation of methylene blue.
2. Green Synthesis of ZnO nanoparticles using Tea extract for phtocatalytic degradation of methylene blue.
3. Synthesis and characterization of carbon nanoparticles from Barley for the removal of chlorine from water.
4. Synthesis and characterization of carbon nanoparticles from Rice powder for the removal of chlorine from water
5. Blending of biodiesel with diesel obtained from sunflower oil and study of its flash point and fire point.
6. Water quality Analysis of samples obtained from different sources.
7. Green synthesis and characterisation of CuO nanoparticle.
8. Determination of calorific value of biofuel synthesized from soyabean Oil.
9. Synthesis and characterization of Fe-Oxide nanoparticles.
10. Low-cost synthesis and characterisation of ZnO nanoparticle
11. Determination of flash point and fire point of biofuel synthesized from soyabean Oil.

(study of low spin state structures completed).

13. DFT study of O₂ and CO adsorption on Ag₄ cluster and determination of their binding energy.

14. Theoretical investigation of structure and electronic properties of small sized Ag_n and Pd_n (n=4-8) clusters.

15. ¹H NMR Spectroscopy

16. DFT studies of Ferrocene derivatives.

17. Effect of pi-linker on HOMO-LUMO gap.

18. DFT studies of D-A benzothiadiazoles



Publications

1. Hybrid density functional and molecular mechanics study of the co oxidation mechanism on faujasite-supported au monomers, Subhi Baishya and Ramesh Ch. Deka, Catalysis in Green Chemistry and Engineering, DOI: 10.1615/CatalGreenChemEng2019028637 pages 369-385.
2. Synthesis and Crystal Structure Studies of Bis-[1-(p-methoxybenzyl)-2-(p-methoxyphenyl)-1H-benzimidazole] tetrabromidocadm(II), M.N Manjunatha , B.Noor, M, Ziaulla, Fazlur Rahaman and P.B.Gowda, Chemical Science Transactions, 2019, 8(2), 244-48.



Department of Chemistry
CMR Institute Of Technology
132, AECS Layout, Kundalahalli
Bangalore 560037
Webpage : <http://www.cmrit.ac.in/>

