



Frontiers in Chemical Sciences – 2022

(FICS – 2022)

December 2-4, 2022

Venue: Conference Hall

Department of Chemistry
Indian Institute of Technology Guwahati





Day 01: 02-12-2022 (Friday)

7:00 – 8:00 AM

Breakfast

8:00 – 9:00 AM

Registration

9:00 – 9:45 AM

Inaugural Session

Chair: Prof. T. G. Sitharam

Guest of Honor: Prof. Mihir Kanti Chaudhuri

9:45 – 10:15 AM

Inaugural Lecture, Prof. J. N. Moorthy

Molecules to Materials by Exploitation of Steric Effects

10:15 – 10:45 AM

KL-1, Prof. Andreas Terfort

Self-Assembled Monolayers: Extremely useful Materials

10:45 – 11:05 AM

Tea

Chair: Prof. T. Punniyamurthy

11:05 – 11:25 AM

IL-1, Prof. Chandra M. R. Volla

Allenes in Metal-Catalyzed C-H Activation Reactions

11:25 – 11:45 AM

IL-2, Dr. Sakya S. Sen

Amidinatosilylsilylene: A New Synthon in Silicon Chemistry

11:45 – 12:05 PM

IL-3, Prof. Ananya Debnath

Membrane Phase Transition Dictated Heterogeneity Length and Time Scale of Interface Water

12:05 – 12:25 PM

IL-4, Prof. Subrata Kundu

Anaerobic Oxidative Modifications of Phenolic Substrates at Copper(II) Sites: Implications of Proton-Coupled-Electron-Transfer (PCET) Route

12:25 – 12:45 PM

IL-5, Prof. Ponneri C. Ravikumar

Breaking Inert Bonds for Making Heterocyclic Derivatives Using Co-catalyst Through Weak Chelation

12:45 – 2:00 PM

Lunch

Chair: Prof. Parameswar Krishnan Iyer

2:00 – 2:30 PM

KL-2, Prof. Toshiki Nokami

Synthesis of Cyclic Oligosaccharides via Automated Electrochemical Assembly

2:30 – 2:50 PM

IL-6, Prof. Pijus Kumar Sasmal

Aggregation-Induced Emission Active Iridium Complexes for Tackling Antimicrobial Resistance



2:50 – 3:10 PM

IL-7, Prof. Joyram Guin

Asymmetric N-Heterocyclic Carbene Catalysis via Non-covalent Interaction

3:10 – 3:30 PM

IL-8, Prof. Mrinmoy De

Surface Chemistry of 2D-MoS₂ and Related Applications

3:30 – 3:45 PM

IndL-1, Shri Pankaj Goswami

Role of Oil Field Chemicals in Energy Transition

3:45 – 4:00 PM

Tea

Chair: Prof. Jubaraj Bikash Baruah

4:00 – 4:20 PM

IL-9, Prof. Ajay Venugopal

Cationic Magnesium and Calcium Hydrides: Catalysts or Pre-Catalysts?

4:20 – 4:40 PM

IL-10, Dr. Santosh Kumar Gupta

Switching to Rare Earth Independent Light: a step towards Aatmanirbhar Bharat

4:40 – 5:30 PM

OP1-5, Student Oral presentation

OP-1, Arup Das Kanungo

Exploration of the Excited State Intramolecular Proton Transfer Process in Solid Organic Fluorophore 2,2'-(1,4-phenylenebis(1H-benzo[d]imidazole-1,2-diyl) diphenol an AIEE Active Material Applying to Green Light OLED

OP-2, Dipankar Barman

Organocatalytic Asymmetric Inverse-Electron-Demand-Diels-Alder Reaction between Alkylidene Pyrazolones and Allyl Ketones: Access to Tetrahydropyrano [2,3-c]Pyrazoles

OP-3, Himangshu Sharma

Total Synthesis of Bioactive Natural Product: Thailandamide Lactone

OP-4, Ibanrishisha Mawa

Unravelling the excited state relaxation pathways in two nitrile-substituted 2-(oxazoliny)-phenols

OP-5, Gopabandhu Panigrahi

Effect of Chalcogen's (Q) Size and Vacancy of Metals in Controlling the Dimensionality of Lanthanide (Ln) Containing Quaternary Ba₂- δ Ln_{1-x}Mn_{2-y}Q₅ Chalcogenides

5:30 – 7:00 PM

Poster Session (P1 – P81)

7:00 – 9:00 PM

Dinner



Day 02: 03-12-2022 (Saturday)

7:00 – 8:00 AM

Breakfast

Chair: Prof. Abu Taleb Khan

9 – 9:40 AM

PL-1, Prof. David Crich (Virtual)

Remote Conformational Control of Reactivity in the Formation and Cleavage of Glycosidic Bonds: From the Lab Bench to Nature

9:40 – 10:10 AM

KL-3, Prof. G. Naresh Patwari

To ROAM or NOT?

10:10 – 10:30 AM

IL-11, Prof. Madhab C. Das

MOFs and HOFs toward Plausible Energy Applications

10:30 – 10:50 AM

IL-12, Prof. Kalyaneswar Mandal

Reciprocally chiral recognition to block red blood cell invasion by malaria parasites

10:50 – 11:10 AM

Tea

Chair: Prof. Sourav Pal

11:10 – 11:50 AM

PL-2, Prof. Rahul Banerjee

Covalent Organic Frameworks and Reticular Nano-Synthesis

11:50 – 12:20 PM

KL-4, Prof. Christof Wöll

Programmed Assembly of Functional Molecular Solids from Building Blocks: The SURMOF Approach

12:20 - 12:40 PM

IL-13, Prof. Rajarshi Samanta

Migratory Insertion of Quinoid Carbene: Useful Tool for Step-Economic Construction of Azaheterocycles

12:40 – 1:00 PM

IL-14, Prof. Geetharani K.

Development of N-Heterocyclic Carbene Complexes of Cobalt for Carbon-Boron Bond Formation

1:00 – 2:00 PM

Lunch



Chair: Prof. Gopal Das and Prof. Mohd. Qureshi

2:00 – 2:20 PM

IL-15, Prof. Biplab Maji

Proximity and Interlocking in Photoredox/Nickel Dual Catalysis

2:20 – 2:40 PM

IL-16, Dr. Sandeep Kumar Dey

Selective Recognition and Extraction of Oxyanions by Urea-Functionalized Tripodal Receptors

2:40 – 3:00 PM

IL-17, Prof. Krishna Pada Bhabak

Turn-on Fluorogenic Donors of Hydrogen Sulfide (H₂S): Fascinating Approaches toward Drug Delivery

3:00 – 3:20 PM

IL-18, Prof. Anukul Jana

Redox Mediated Synthesis of Main-Group Based Open-Shell Compounds

3:20 – 3:40 PM

IL-19, Prof. Apurba Lal Koner

Sub-Cellular Intercom and Understanding Local Physical Properties

3:40 – 4:00 PM

IL-20, Prof. Sabuj Kundu

Methanol as a Sustainable Reagent: Our Journey

4:00 - 4:15 PM

Tea

Chair: Prof. Biplab Mondal

4:15 – 4:55 PM

PL-3, Prof. Maurice Brookhart (Virtual)

Mechanistic and Synthetic Aspects of Olefin Polymerizations Using Late Transition Metal Catalysts

4:55 – 5:10 PM

IndL-2, Shri Prasad Bidwe

SYNTHIA™-Retrosynthetic Design Software

5:10 – 5:30 PM

OP6-7, Student Oral presentation

OP-6, Madhusmita Devi

Comprehending the Efficacy of Whitlock's Caffeine-Pincer Molecular Tweezer on β -Amyloid Aggregation

OP-7, Ritobrata De

Oxadiazole-adorned Heterocoronene Discotics as Ambipolar Organic Semiconductors

5:30 – 7:00 PM

Poster (P82-P162)

7:00 – 9:00 PM

Conference Dinner



Day 03: 04-12-2022 (Sunday)

7:00 – 8:00 AM

Breakfast

Chair: Prof. Anil K. Saikia

9:00 – 9:40 AM

PL-4, Prof. Kavirayani R. Prasad

Towards the total synthesis of Strychnine

9:40 – 10:00 AM

IL-21, Prof. Debashis Adhikari

A Radical-Promoted Olefin Hydrogenation en route to α -Alkylation Reaction

10:00 – 10:20 AM

IL-22, Prof. Madhurima Jana

Introducing a New Class of Boron-Based Heterocyclic Anion Receptor Additives in Li-Ion Battery Electrolyte: A Combined DFT and Computer Simulation Study

10:20 – 10:40 AM

IL-23, Prof. Prabal Banerjee

Organic Electrochemistry: A Sustainable and Environmentally Benign Tool for Accessing Structurally Diverse Molecular Architectures

10:40 – 11:00 AM

IL-24, Prof. Nagaraja C. Mallaiah

Strategic design of framework materials for catalytic conversion of carbon dioxide to value-added chemicals

11:00 – 11:20 AM

Tea

Chair: Prof. Aditya Narayan Panda

11:20 – 11:50 AM

KL-5, Prof. Shu-Li You (Virtual)

Recent Progress on Catalytic Asymmetric Dearomatization Reactions

11:50 – 12:10 PM

IL-25, Prof. Seelam Prasanth Kumar

1D alignment of metalated porphyrin based self-assembled nanowires for photocatalytic hydrogen evolution

12:10 – 12:30 PM

IL-26, Prof. Pankaj Kumar Koli

A step-wise reduction of nitrate $\rightarrow$ nitrite $\rightarrow$ nitric oxide and vice versa: Biological homeostasis of NO and its derivatives

12:30 – 12:50 PM

IL-27, Prof. Srabanti Chaudhury

An Insight into Protein-DNA Interactions Using Discrete-State Stochastic Models

12:50 – 2:00 PM

Lunch



Chair: Prof. Sandip Paul

2:00 – 2:30 PM

KL-6, Prof. Satrajit Adhikari

The effects of surface temperature on molecule-surface scattering processes: vibrational quantum and surface atoms recoil effects

2:30 – 2:50 PM

IL-28, Prof. Dipankar Srimani

Activation of Alcohols for Sustainable Catalytic Transformations

2:50 – 3:10 PM

IL-29, Dr. Joyee Mitra

Reversible Toxic Gas Adsorption & Catalytic Applications of Supramolecular Metallogels

3:10 – 3:30 PM

IL-30, Prof. Susmita De

Understanding the Language of Proteins through Chemistry

3:30 – 4:00 PM

OP8-10, Student Oral presentation

OP-8, Sayani Maity

Nitrogen Dioxide Reactivity of Copper(II) complex with tetradentate amine ligand followed by ligand nitrosation

OP-9, Smiti Rani Bora

Tuning the charge transfer and optoelectronic properties of tetrathiafulvalene based organic dye-sensitized solar cells: a theoretical approach

OP-10, Subhradeep Kar

Bi-Catalysed Unprecedented 1,2-Reactivity of Spiro-Cyclopropyl Oxindoles with Dithianediol: Access to Spiro-Heterocycles

4:00 – 4:15 PM

Tea

Chair: Prof. Ashish Kumar Gupta

4:15 – 4:35 PM

OP11-12, Student Oral presentation

OP-11, Tirupati Roy

Synthesis, optical properties and cation mediated tuning of reduction potentials of core-annulated naphthalene diimide derivatives

OP-12, Vasudha Sharma

A Robust low coordinate Co(II) Catalyst for Efficient Conversion of CO₂ into Methanol Under Mild Conditions

4:35 – 4:50 PM

IndL-3, Dr. Sunil Dhole and Shri Tushar Wagh (Virtual)

Chemistry and Chemical Engineering at Service

4:50 – 5:05 PM

IndL-4, Dr. Prathapa Sيريara Jagannatha (Virtual)

Bridging the Gap Between Electron and X-Ray Diffraction

5:05 – 5:30 PM

Valedictory Program

7:00 – 9:00 PM

Dinner



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ऑयल इंडिया लिमिटेड
(भारत सरकार का उद्यम)
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Anton Paar



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