

INTERNATIONAL CONFERENCE ON EMERGING FRONTIERS IN CHEMICAL SCIENCES EFCS – 2023

19-21 DECEMBER 2023

INAUGURATION

PROF. FRANCESCO STELLACCI

Institute of Materials Interfaculty Bioengineering
Institute, Lausanne, Switzerland

Organised by



POST GRADUATE AND RESEARCH DEPARTMENT OF CHEMISTRY

FAROOK COLLEGE (AUTONOMOUS)

Farook College, Kozhikode, Kerala, India - 673 632.

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INAUGURATION







WELCOME SPEECH: Dr. A.P KAVITHA (HEAD DEPT OF CHMISTRY, FAROOK COLLEGE)



PRESIDENTIAL ADDRESS: **Prof. T. PRADEEP** (CHAIRMAN EFCS)





PRINCIPAL'S ADDRESS: Dr. K.A. AYSHA SWAPNA (PRINCIPAL, FAROOK COLLEGE)





INTRODUCING PROF. FRANCESCO STELLACCI: **Dr. T. SHALINA BEGUM**
(JOINT CONVENER, EFCS)



INAUGURAL ADDRESS: **Prof. FRANCESCO STELLACCI** (INSTITUTE OF MATERIALS INTERFACULTY BIOENGINEERING INSTITUTE, LAUSANNE, SWITZERLAND)





ADORING PONNADA TO **Prof. FRANCESCO STELLACCI** Janab
P. K. AHAMED (PRESIDENT MANAGING COMMITTEE)



HONORING **Prof. T. PRADEEP** (CHAIRMAN EFCS) **Dr. K. A. AYSHA SWAPNA**
 (PRINCIPAL FAROOK COLLEGE)



RELEASING BOOK OF ABSTRACT
JANAB C. P. KUNHIMOHAMMED (MANAGER FAROOK COLLEGE)



**DECLARATION OF LIFE TIME ACHIEVEMENT AWARD, 2023
Prof. V. M. ABDUL MUJEEB (VICE CHAIRMAN EFCS)**



HONORING Dr. NYGIL THOMAS
Prof. E. P. IMBICHIOYA (FORMER PRINCIPAL FAROOK COLLEGE)
REPLY SPEECH BY Dr. NYGIL THOMAS



FELICITATIONS: Dr. ALI FAIZAL (JOINT SECRETARY, MANAGING COMMITTEE)



FELICITATIONS: Prof. E.P. IMBICHIKOYA (FORMER PRINCIPAL, FAROOK COLLEGE)



VOTE OF THANKS: Mr. SHANVAS YOOSUF (GENERAL COORDINATOR, EFCS 2023)



TECHNICAL SESSION 1

DAY 1



Atomically Precise Matter
Prof. T. PRADEEP
 (Indian Institute of Technology Madras)



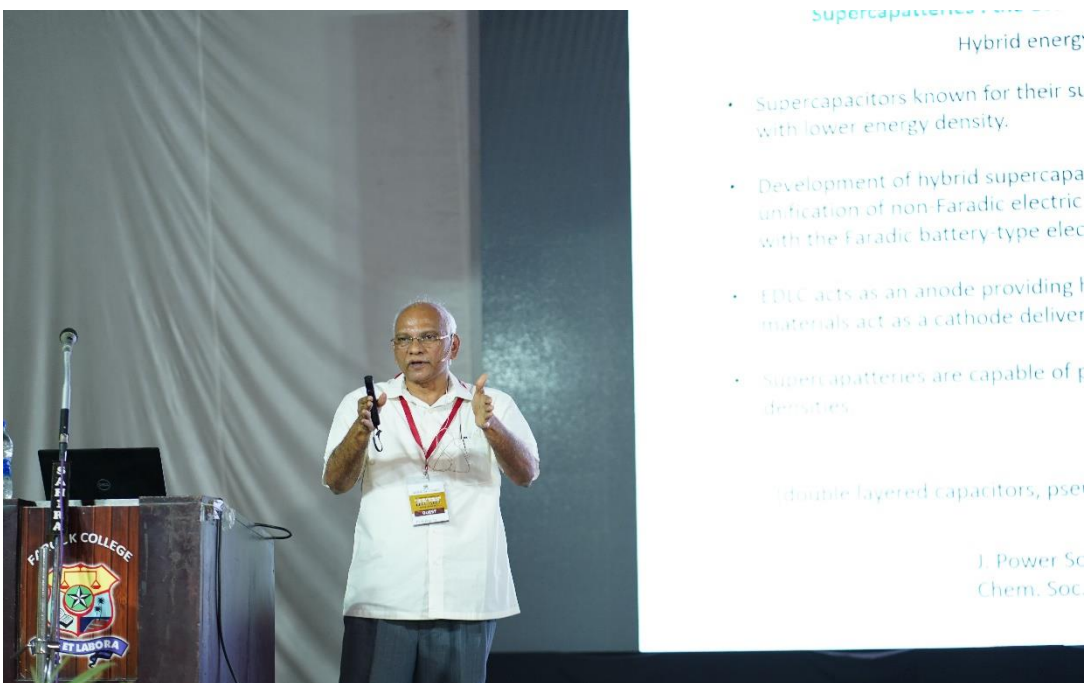




TECHNICAL SESSION 2



Metal Phosphate Rings, Chains, Cages, and Layered Materials: Energy Applications
Prof. R MURUGAVEL
(Indian Institute of Technology Bombay)



Inorganic Materials for Energy Storage
Prof. G. RANGA RAO
 (Indian Institute of Technology Madras)





PANEL DISCUSSION



Alumni Engagement for Strengthening Higher Education





Prof. V.M ABDUL MUJEEB

(Vice Chairman, EFCS, Rtd. Head, Department of Chemistry University of Calicut)



Prof. MUHAMMED BASHEER UMMATHUR
(Principal, KAHM Unity Women's College, Manjeri)



Dr. P.K. HASHIM
(Asst. Professor, Research institute for Electronic Science,
Hokkaido University, Japan)



Mr. E. K. ABDUL LATHEEF
(Quality Assurance Manager, Al Wahaat Drinking Water
Industry, Qatar)



Mr. THABASSUM A. NATTIKALLUNGAL
(Research Scholar, University of Southern California, Los
Angeles, USA)

TECHNICAL SESSION 3



2D Materials-Based Smart Membranes and Their Applications
Prof. RAHUL RAVEENDRAN NAIR
 (University of Manchester)

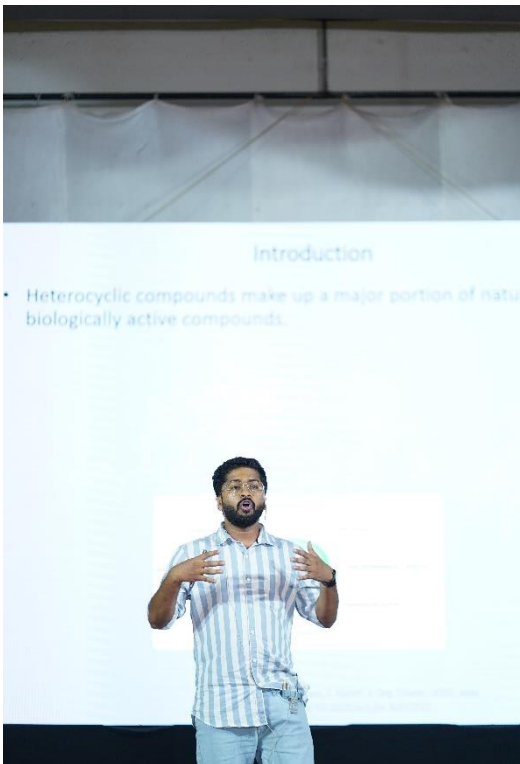


Carbon and Water Recycling for Sustainable Energy: A Journey from Fundamental Chemistry to Green Technologies

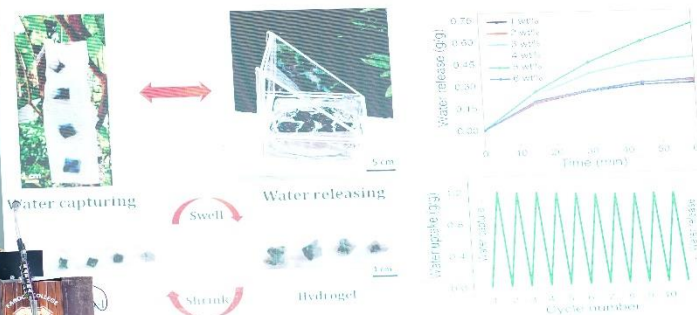
Prof. SEBASTIAN PETER

(Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore)

ORAL PRESENTATIONS



OUT DOOR EXPERIMENT





INTERACTIVE SESSION











CONFERENCE DINNER









DAY 2
TECHNICAL SESSION 5



Stabilising Gold in non-Cubic Crystal Structures
Prof. G.U. KULKARNI
 (Jawaharlal Nehru Centre for Advanced Scientific
 Research, Bangalore)



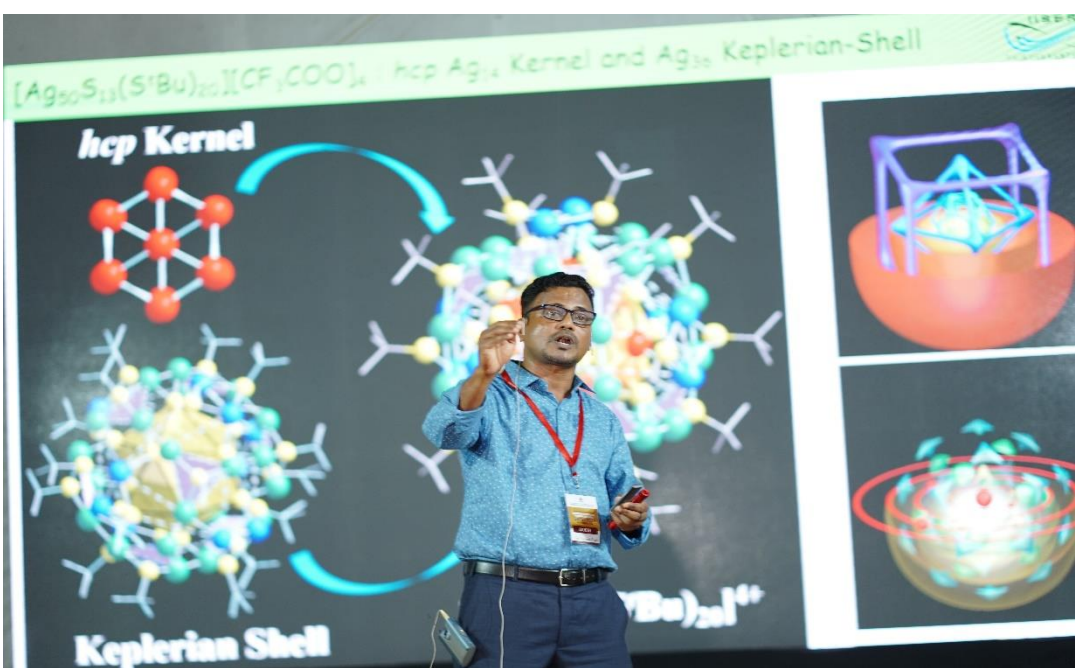
(Car)borane Cluster Molecules in Self-Assembly on Flat and Colloidal Metal Surfaces
Prof. TOMAS BASE
 (The Czech Academy of Sciences, Czech Republic)



Light-Induced Self-Assembly in Precision Noble Metal
Nanoclusters: New Directions and Applications

Dr. SHIBU SIDHARTH
(University of Calicut)

TECHNICAL SESSION 6



EFCS - 2023

INTEGRATION
PROF. FRANCESCO STELLA

Institute of Materials Interfaculty, Swiss Federal Institute of Technology, Zurich, Switzerland

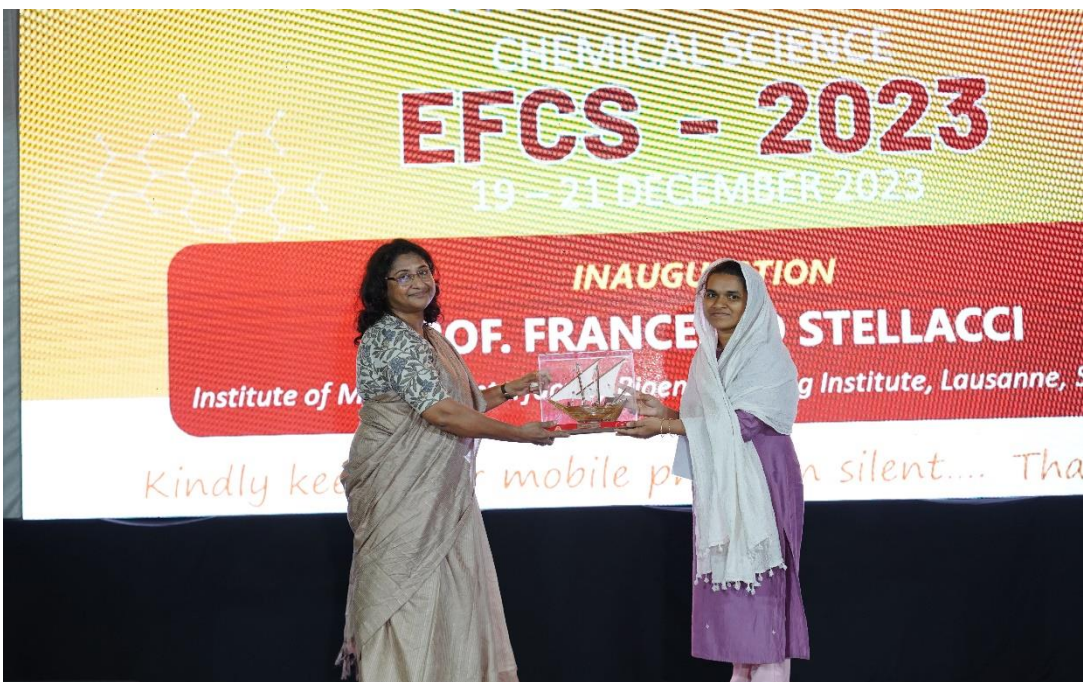
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Structural Design in Atomically Precise Silver and
Copper Nanoclusters

Prof. SUKHENDU MANDAL
(IISER Thiruvananthapuram)



- Recently natural biopolymers based on plant exudates are extensively used in the synthesis of nanoparticles.
- Major functional groups identified in the gum are carboxylic groups.
- There is a growing attention to the nanotoxicology of nanoparticles recently due to their wide uses.



Synthesis of Biogenic Nanoparticles Incorporated
Bionanocomposites and Its Applications
Dr. BINI GEORGE
(Central University of Kerala, Kasaragod)

POSTER PRESENTATION





TECHNICAL SESSION 7

Ligand Engineering in Atomically Precise Metal Nanoclusters

Dr. Indranath Chakraborty

School of Nano Science and Technology
IIT Kharagpur



EFCS-2023, Dec 19-21, 2023



Ligand Engineering in Atomically Precise
Metal Nanoclusters

Dr. INDRANATH CHAKRABORTY
(IIT Kharagpur)

Cu-catalyzed Sonogashira coupling

| Ligand | Solvent | Base | Yield (%) |
|--------|-------------|---------------------------------|-----------|
| L | DMF | K ₃ PO ₄ | 30 |
| L | DME | K ₃ PO ₄ | nd |
| L | Toluene | K ₃ PO ₄ | 78 |
| L | THF | K ₃ PO ₄ | nd |
| L | MeCN | K ₃ PO ₄ | 50 |
| L | 1,4-dioxane | K ₃ PO ₄ | 98 |
| L | DMSO | K ₃ PO ₄ | 82 |
| L | t-BuOH | K ₃ PO ₄ | 36 |
| L | 1,4-dioxane | K ₂ CO ₃ | 70 |
| L | 1,4-dioxane | NaOH | 35 |
| L | 1,4-dioxane | Cs ₂ CO ₃ | 75 |
| L | 1,4-dioxane | NaO ^t Bu | 30 |
| L | 1,4-dioxane | Et ₃ N | traces |

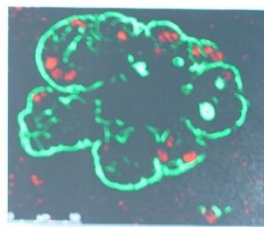
A. M. Thomas, S. Asha, G. Anilkumar, *RSC Advances*, **2014**, *4*, 21688
 S. Asha, A. M. Thomas, S. M. Ujwaldev, G. Anilkumar, *ChemistrySelect* **2016**, *1*, 3938



Transition Metal Catalysis for Heterocycle synthesis
Prof. G. ANILKUMAR
 (MG University)

NOVEL BREAST CANCER MODELS

Bridging Preclinical-Clinical Boundaries



Seeing Nanoscale Assemblies in 3D

Prof. N. NONAPPA

(Tampere University, Finland)



National Institute of Technology Karnataka, Mysore



Exploring the Multiple Conformational States of RNA
Genome through Network Analysis.
Dr. DEBASHREE CHAKRABORTY
NITK Surathkal

CULTURAL PROGRAMME













DAY 3
TECHNICAL SESSION 8



Interfacial Tension Induced Morphology Tuning of
 Polymer Nanomaterial Composites at the Liquid-Liquid
 Interface
Dr. MINI MOL MENAMPARAMBATH
 (NIT Calicut)

Oxygen Reduction Reaction



Dr. Nygil Thomas
Assistant Professor
Department of Chemistry,
Nirmalagiri College, Kannur-670

EFCS - 2023, 19th - 21st Decemb



Heterogenous Catalysis; Challenges and
Opportunities in Methanol Synthesis, Oxygen
Evolution Reaction and Oxygen Reduction Reaction

Dr. NYGIL THOMAS

(Nirmalagiri College Kuthuparamba)



Advanced technologies of secondary refining and 3D
Printing Technology in High Quality Casting and
Manufacturing

Dr. NITHIN RAJ

(Manager R&D, Pee kay Steel Castings (P) LTD)

VALEDICTORY SESSION

























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