SOURAV LAHA

Assistant Professor
Department of Chemistry
National Institute of Technology Durgapur
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Academic Profile
Department of Chemistry, National Institute of Technology Durgapur (NITDurgapur), India

Areas of interest:

- Solid state chemistry.
- Materials chemistry.
- Transition metaloxides, halides, chalcogenides.
- Exploration of new materials for efficient energy and environmental applications.
- Exfoliation of layered transition metal oxide to nanosheets.
- Electrocatalytic water splitting and CO_2 reduction.
- Supercapacitive and pseudocapacitive energy storage.

Positions and Affiliations:

Assistant Professor **June 2022–Present**

Place of work: Department of Chemistry, National Institute of Technology Durgapur (NIT Durgapur), India

Ramanujan Fellow **December 2021–June 2022**
Place of work: Department of Humanities and Sciences, Indian Institute of Petroleum and Energy, Visakhapatnam, India

Postdoctoral Fellow **February 2017–October 2021**
Place of work: Department of Nanochemistry, Max Planck Institute for Solid State Research (MPI-FKF), Stuttgart, Germany
Supervisor: Prof. Dr. Bettina V. Lotsch

Doctoral work (Integrated PhD) **August 2010–December 2016**
Place of work: Solid State and Structural Chemistry Unit (SSCU), Indian Institute of Science (IISc), Bangalore, India.
Supervisor: (Late) Prof. J. Gopalakrishnan and Prof. S. Natarajan

Thesis Title: Exploring transition metal oxides towards development of new functional materials: Lithium-ion battery cathodes, inorganic pigments and frustrated magneticperovskite oxides

Pre-doctoral:

Obtained Master of Science (Integrated PhD, Chemical Sciences) from IISc, Bangalore in 2016.

MS Project (January 2010–June 2010):
Supervisor: (Late) Prof. J. Gopalakrishnan and Prof. Srinivasan Natarajan
Dissertation Title: "New inorganic chromophores based on chromium and manganese"

Obtained B.Sc. (first class) from Bankura Christian College (The University of Burdwan)in **2008**.
Subjects: Chemistry (Honors), Physics and Mathematics (subsidiary subjects),
Bengali, English and Environmental science.

Teaching Experience:

Postgraduate:

§ Organometallic and Bioinorganic Chemistry (Spring, Co-instructor) at NIT Dgp.

§ Chromatographic Separation and Instrumental Methods of Analysis (Spring, Co-instructor) at NIT Dgp.

§ Group theory, Applied Electro Chemistry and X-ray structure analysis (Autumn, Co-instructor) at NIT Dgp.

§ Spectrophotometric Estimation of Cations and Anions (Laboratory, Autumn, Co-instructor) at NIT Dgp.

Undergraduate:

§ Chemistry of elements and Radioactivity, (Spring, Instructor) at NIT Dgp

§ Chemistry in Solution and Solid State Chemistry (Autumn, Co-instructor) at NIT Dgp.

§ Atomic Structure and Chemical Bonding (Autumn, Co-instructor) at NIT Dgp.

§ Quantitative Estimation of Metal ions in Mixture (Laboratory, Autumn, Co-instructor) at NIT Dgp.

§ Engineering Chemistry (B. Tech.), (Spring, Co-instructor) at NIT Dgp

§ Chemistry Laboratory (B. Tech.), (Autumn and spring, Instructor) at NIT Dgp.

§ Nuclear, Wind and Geothermal Energy (Spring 2021-2022, Co-instructor) at IIPE, Visakhapatnam.

Awards and Recognitions

- Selected for Ramanujan Fellowship, awarded by Science and Engineering Research Board (SERB), Department of Science and Technology (DST), Government of India, August 2021.
- Received Max Planck Institute for Solid State Research, Stuttgart scholarship for Postdoctoral position (February, 2017–January, 2019).
- Invited to Universidad Complutense and Universidad CEU San Pablo, Madrid, Spain (EU) to work with Prof. M A Alario-Franco and Prof. F. García-Alvarado's research group at for seven months in 2012.
- Joint Admission to M.Sc. (JAM)–2008, conducted by Indian Institute of Technology(IIT).
- Integrated PhD-2008, conducted by Indian Institute of Science (IISc), Bangalore.

Projects:

Completed:

- Start-up Research Grant (SRG), SERB, DST, India (September 2023) Project titled 'Transition metal oxide nanosheets for efficient and cost-effective green hydrogen production'. Total sanction amount: Rs. 33,00,000/- (Rupees thirty three lakh only).

❖ Ramanujan Fellowship (SERB) at IIPE Visakhapatnam (December 2021- June 2022), Total sanctioned amount: Rs. 1,19,00,000/- (Rupees one crore nineteen lakh only).

Research Experiences:

- **Inorganic solid state synthesis:** Trained in carrying out inorganic reactions using high temperature ceramic method, solution combustion method, sol-gel method forthe synthesis of solids, solid state metathesis reactions, hydrothermal techniques and high throughput synthesis. Also acquainted with sealing evacuated quartz ampoules and handling air sensitive samples in Schlenk line and in glove box.
- **Exfoliation of layered materials to nanosheets:** Familiar with aqueous exfoliation and intercalating alkali metal ions in layered halides and sulfides underinert atmosphere.
- **Electrochemistry:** Trained in assembling CR2032 coin-cells and testing.
- **Catalysis:** Experienced in Electrocatalysis and Photo-electrocatalysis employing Autolab, Pine and Ivium electrochemical workstations with both dimensionally stable electrodes and rotating disc electrodes.
- **Computational methods:** Acquainted with (i) analyzing PXRD data applying 'X'Pert Highscore' software, (ii) Rietveld refinement applying 'GSAS-EXPGUI' software, (iii) structure-drawing applying 'Diamond' software, simulation of PXRD patterns applying 'Powdercell' software (iv) analysis of XPS data with by weightedleast-squares fitting method employing CasaXPS software.
- **X-ray diffraction:** Used powder X-ray diffraction technique extensively during Ph.D. and postdoctoral fellowship.
- **UV-Vis and Photoluminescence:** Trained in handling UV-Vis and photoluminescence machine to study luminescence behavior of inorganic oxides.
- **SEM and EDX analysis:** Have hands-on experience to handle FEI ESEM Quanta200 to record SEM images and EDX spectra of non-volatile inorganic compounds.
- **Other Techniques:** Trained in Thermogravimetric analysis (TGA), Differential Scanning Calorimetry (DSC), Infrared spectroscopy (IR), magnetic measurementsusing PPMS and Atomic Force Microscopy (AFM).

List of Publications:

Book Chapter:

1. **"**Nano-MOFs and MOF-Derived Nanomaterials for Electrocatalytic Water Splitting" (chapter no. 6) in the book **"**Nanomaterials for Energy Applications**"**, edited by L. Syam Sundar, Shaik Feroz, Faramarz Djavanroodi, CRC Press, Taylor & Francis Group, by Subhradeep Mistry, Sourav Laha, 2023, eBook ISBN: 9781003364825, https://doi.org/10.1201/9781003364825-6

Journal:

46. "Rational Core-Shell Design of Novel Ni-Co Bimetallic MOF@PBA and $Al_xV_2O_5$@C as Positive and Negative Electrode Materials for High-Performance Aqueous Zn-ion Hybrid Supercapacitors" Nandini Barman†, Prakash Kumar Mondal†, Pulak Pradhan, Deyashi Sarkar, Shreya Dan, Nirjhar Chakraborty, Pallav Mondal, Dudekula Khasim Vali, Joydeep Ray, Yogesh Kumar, Utpal Adhikari, Milan Maji, Subhradeep Mistry, **Sourav Laha***, Anjan Banerjee*, *J. Mater Chem. A*, **2026**, (DOI: D5TA10451C) (†these authors contributed equally).

45. "Cu_2O Nanocube Anchored Co_3O_4 Nanosheet: An Interfacial Avenue for Efficient Green Hydrogen Production Through Alkaline Water Electrolysis" Phulladweepa Patra, Somnath Ghosh,* **Sourav Laha,*** *ChemCatChem*, **2026**, *18*, e70773.

44. "Electrocatalytic Oxygen Reduction Reaction Using a Water-Stable Ni-Based Coordination Polymer with Two-Dimensional Honeycomb Architecture" Sourav Sarkar, Biswajit Nayak, Smruti Vardhan Purohit, Debal Kanti Singha, Bibek Dash, **Sourav Laha**, Bikash Kumar Jena, Partha Mahata, *Inorg. Chem.*, **2026**, *65*, 7269-7277.

43. "Electronic Synergism in Amorphous $Zr_{0.9}Mn_{0.1}(OH)_{4-\delta}$ for Enhanced Electrocatalytic Green Hydrogen Production in Alkaline Seawater" Pulak Pradhan, Pallav Mondal, Niharika Sarma, Kaushik Baidya, Utpal Adhikari, Jitamanyu Chakrabarty, **Sourav Laha,*** *Small*, **2026**, *26*, e13454.

42. "Optimizing Ni/Co Ratios in NiCo-LDH for Enhanced Hydrogen and Oxygen Evolution Reactions in Overall Water Splitting" Pachaiyappan V, Pallav Mondal, Debdyuti Mukherjee, **Sourav Laha,*** Sujoy Sarkar,* *J. Power Sources*, **2026**, *671*, 239607.

41. "Enhancing Zn-Ion Battery Performances with Hydrogel Electrolytes: Synergistic use of Mn-Vanadate Positive and Metal–Organic Framework-Derived CuO Negative Electrodes" Apurba Maiti, Subhrajyoti Debnath, Nandini Barman, Pulak Pradhan, Arijit Dey, Pappu Naskar, **Sourav Laha,*** Anjan Banerjee,* *Energy Technology*, **2026**, 14, e202501982.

40. "Entropy as a Design Principle for Boosting Water Splitting: A Case Study on 1,3,5-Benzenetricarboxylic Acid-Based Metal-Organic-Frameworks" Subarna Mandal, Deblina Banerjee, Pallav Mondal, **Sourav Laha,*** Anjan Banerjee*, *ChemistrySelect*, **2025**, *10*, e03296.

39. "In Quest of an Efficient Positive Electrode Material for Aqueous Al-Ion Hybrid Capacitor: Investigation of a High Entropy Prussian Blue Analog" Arijit Dey, Sribas Mondal, Pallav Mondal, Pappu Naskar, **Sourav Laha,*** Anjan Banerjee*, *ChemPlusChem*, **2025**, e202500375.

38. "Exploring Synergy: Pd/$HyMn_{0.8}Co_{0.2}O_2$ Nanocomposite for enhanced Overall Water Splitting towards Sustainable Green Hydrogen Production" Phulladweepa Patra, Somnath Ghosh*, **Sourav Laha***, *Energy Fuels*, **2025**, *39*, 11926-11937.

37. "Unlocking Enhanced Hydrogen Evolution with Bimetal-Organic Framework: A Synergistic Approach" Chhatan Das, Pappu Naskar, Anjan Banerjee,* **Sourav Laha***, Moumita Mukherjee, Ayan Datta*, Partha Mahata*, *Chem. Commun.*, **2025**, *61*, 9107-9110.

36. "Boosting Aqueous Zn-Ion Battery Performances with Mg-Vanadate Positive and Cu-MOF Negative Electrodes in Inorganic Gel Electrolyte" Subhrajyoti Debnath, Apurba Maiti, Pappu Naskar, Arijit Dey, **Sourav Laha***, Anjan Banerjee*, *ChemNanoMat*, **2025,** e202500077.

35. "Electron Deficient Oxygen Species in Highly OER Active Iridium Anodes Characterized by X-ray Absorption and Emission Spectroscopy" Lorena Alzate-Vargas, Lorenz Falling, **Sourav Laha,** Bettina Lotsch, Jau-Wern Chiou, Ting-Shan Chan, Way-Faung Pong, Cheng-Hao Chuang, Juan Velasco-Vélez, T. E. Jones, *Phys. Chem. Chem. Phys.*, **2025**, *27*, 9252-9261**.**

34. "Analogous Copper Nanoclustures ($Cu_{16/17}$) with Two Electron Superatomic and Mixed Valence Copper(II)/Copper(I) and Copper(I)/Copper(0) Characters" Shibaditya Kumar,[#] Saikat Mishra,[#] Aniruddha Das, Kuldeep Mahiya, **Sourav Laha**, Milan Maji, Apurba K. Patra, *Nanoscale*, **2025**, *17*, 982-991 ([#]these authors contributed equally).

33. "Investigating the Impact of Copper and Zinc Doping in High-Entropy Prussian Blue Analogues for Na-Ion Batteries: From Material Analysis to Device Fabrication" Pappu Naskar, Pallav Mondal, Biplab Biswas, **Sourav Laha***, Anjan Banerjee*, *Energy Technology*, **2025**, *13*, 2401733.

32. "CeO_2-Mn_3O_4 Solid-Solutions with Enhanced Photocatalytic Activity towards Degradation of Phenolic Compounds" Pulak Pradhan, Deboshree Mukherjee, **Sourav Laha***, Jitamanyu Chakrabarty*, *ChemistrySelect*, **2024**, *9*, e202404369.

31. "Atomic Insights into the Competitive Edge of Nanosheets Splitting Water" Lorenz J. Falling, Woosun Jang, **Sourav Laha**, Thomas Götsch, Maxwell W. Terban, Sebastian Bette, Rik Mom, Juan-Jesus Velasco-Vélez, Frank Girgsdies, Detre Teschner, Andrey Tarasov, Cheng-Hao Chuang, Thomas Lunkenbein, Axel Knop-Gericke, Daniel Weber, Robert Dinnebier, Bettina V. Lotsch, Robert Schlögl, Travis E. Jones, *J. Am. Chem. Soc.*, **2024**, *146*, 27886-27902.

30. "Prussian Blue Analogues with $Na_2Ni_xCo_yMn_zFe(CN)_6$-Multimetallic Structures as Positive and Hydrogen Vanadate as Negative Electrodes in Aqueous Na-Ion Batteries for Solar Energy Storage Applications" Pappu Naskar, Biplab Biswas, **Sourav Laha***, Anjan Banerjee*, *Energy Adv.*, **2024**, *3*, 1401-1413.

29. "Exfoliated Cobalt Doped Manganese Oxide Nanosheets: Efficient and Stable Electrocatalyst for Hydrogen Evolution Reaction in Alkaline Medium" Phulladweepa Patra, **Sourav Laha***, Somnath Ghosh*, *ACS Appl. Energy Mater.*, **2024**, *7*, 3577-3589.

28. "Calcium Based Metal-Organic Framework: Detection and Idiosyncratic Removal of Copper by Nano-particles Deposition" Pallav Mondal, Bhaskar K. Brahma, Joydeep Ray, Jyothirlatha V. N. Kasu, Avishek Gangopadhyay, Subarna Samanta, **Sourav Laha***, Utpal Adhikari*, *Chem. Eur. J.,* **2024***, 30,* e202400587*.*

27. "Acoustic Shock Wave-Induced Solid-State Fusion of Nanoparticles: A Case Study of the Conversion of One-Dimensional Rod Shape into Three-Dimensional Honeycomb Nanostructures of CdO for High Performance Energy Storage Materials" Sivakumar Aswathappa, Lidong Dai, S. Sahaya Jude Dhas, S. A. Martin Britto Dhas, **Sourav Laha**, Raju Suresh Kumar, Abdulrahman I. Almansour, *Inorg. Chem.*, **2024**, *63*, 576-592.

26. "An Enduring Na-Ion Solar Battery Configured with $Na_2Co_{0.5}Ni_{0.5}Fe(CN)_6$ Positive and $NaTi_2(PO_4)_3$ Negative Electrodes in Na_2SO_4-SiO_2 Hydrogel Electrolyte" Pappu Naskar, Shubhrajyoti Mondal, Biplab Biswas, **Sourav Laha***, Anjan Banerjee*, *J. Electrochem. Soc.*, **2023**, *170*, 090535.

25. "Low Cost & Quasi Solid State $Na_2Mn_{0.5}Ni_{0.5}Fe(CN)_6$//$Na_xFe_2O_3$ Hybrid Na-Ion Batteries for Solar Energy Storage" Pappu Naskar, Shubhrajyoti Mondal, Biplab Biswas, **Sourav Laha***, Anjan Banerjee*, *Sustainable Energy Fuels*, **2023**, *7*, 4189-4201.

24. "Resonant Inelastic X-ray Scattering from Electronic Excitations in α-$RuCl_3$ Nanolayers" Z. Yang, L. Wang, **S. Laha**, D. Zhao, M. Luo, A. Güth, T. Taniguchi, K. Watanabe, B. V. Lotsch, J. H. Smet, M. Minola, H. Gretarsson, B. Keimer, *Phys. Rev. B*, **2023**, *108*, L041406.

23. "The Weyl Semimetals $MIrTe_4$ (M = Nb, Ta) as Efficient Catalysts for Dye-sensitized Hydrogen Evolution" Manisha Samanta, Hengxin Tan, **Sourav Laha**, Hugo Alejandro Vignolo-González, Lars Grunenberg, Sebastian Bette, Viola Duppel, Peter Schützendübe, Andreas Gouder, Binghai Yan, Bettina V. Lotsch, *Adv. Energy Mater.*, **2023**, *13*, 2300503.

22. "High-Performance and Scalable Aqueous Na-Ion Batteries Comprising a Co- Prussian Blue Analogue Framework Positive and Sodium Vanadate Nanorod Negative Electrodes for Solar Energy Storage" Pappu Naskar, Subhrajyoti Debnath, Biplab Biswas, **Sourav Laha***, Anjan Banerjee*, *ACS Appl. Energy Mater.*, **2023**, *6*, 4604-4617.

21. "Sonication-Assisted Liquid Exfoliation and Size-Dependent Properties of Magnetic Two-Dimensional α-$RuCl_3$" Kevin Synnatschke, Martin Jonak, Alexander Storm, **Sourav Laha**, Janis Köster, Julian Petry, Steffen Ott, Beata Szydłowska, Georg S. Duesberg, Ute Kaiser, Rüdiger Klingeler, Bettina Lotsch, Claudia Backes, *J. Phys. D: Appl. Phys.*, **2023**, *56*, 274001.

20. "Morphology Matters: 0D/2D WO_3 Nanoparticle-Ruthenium Oxide Nanosheet Composites for Enhanced Photocatalytic Oxygen Evolution Reaction Rates" Hugo A. Vignolo-González, Andreas Gouder†, **Sourav Laha**†, Viola Duppel, Sol Carretero-Palacios, Alberto Jiménez-Solano, Takayoshi Oshima, Peter Schützendübe, Bettina V. Lotsch, *Adv. Energy. Mater.*, **2023**, 13, 2203315. († These authors contributed equally)

19. "Rare-earth (Nd and Eu) Induced Structural Transformation and Optical Properties of

Brownmillerite-type Sr_2ScGaO_5 Oxide" Tanmay Rom, **Sourav Laha***, Srushti Gadiyaram, Pradip K. Maji, Avijit Kumar Paul*, *J. Solid State Chem.*, **2023**, 317, 123696.

18. "Origin of Oscillatory Structures in the Magnetothermal Conductivity of the Putative Kitaev Magnet α-$RuCl_3$" J. A. N. Bruin, R. R. Claus, Y. Matsumoto, J. Nuss, **S. Laha**, B. V. Lotsch, N. Kurita, H. Tanaka, H. Takagi, *APL Mater*, **2022**, 10, 090703.

17. "Proximate Ferromagnetic State in the Kitaev Model Material α-RuCl3" H. Suzuki, H. Liu, J. Bertinshaw, K. Ueda, H. Kim, **S. Laha**, D. Weber, Z. Yang, L.Wang, H. Takahashi, K. Fürsich, M. Minola, B. V. Lotsch, B. J. Kim, H. Yavaş, M.Daghofer, J. Chaloupka, G. Khaliullin, H. Gretarsson, B. Keimer, *Nat. Commun.* **2021**, 12, 4512.

16. "Towards Standardized Photocatalytic Oxygen Evolution Rates using RuO_2@TiO_2 as a Benchmark" Hugo A. Vignolo-González, **Sourav Laha**, Alberto Jiménez- Solano, Takayoshi Oshima, Viola Duppel, Peter Schützendübe, Bettina V. Lotsch,*Matter* **2020**, *3*, 464–486.

15. "Magnetic Frustration in Partially Ordered Double Perovskites Ln_3Ni_2RuO9 (Ln = La, Nd)" **S. Laha**, J. Gopalakrishnan, S. Natarajan, J. Romero de Paz, E. Solana-Madruga, A. J. Dos Santos-García, S. García-Martín, O. Fabelo, E. Morán-Miguélez, R. Sáez-Puche, *J. Alloys Compd.* **2019**, *806*, 1509–1516.

14. "Ruthenium Oxide Nanosheets for Enhanced Oxygen Evolution Catalysis in AcidicMedium" **Sourav Laha**, Yonghyuk Lee, Filip Podjaski, Daniel Weber, Viola Duppel,Leslie M. Schoop, Florian Pielnhofer, Kathrin Müller, Ulrich Starke, Karsten Reuter,Bettina V. Lotsch, *Adv. Energy Mater.* **2019**, *9*, 1803795 (**Frontispiece**).

13. "IrOOH Nanosheets as Acid Stable Electrocatalyst for the Oxygen Evolution Reaction" Daniel Weber, Leslie M. Schoop, Daniel Wurmbrand, **Sourav Laha**, FilipPodjaski, Viola Duppel, Kathrin Müller, Ulrich Starke, Bettina V. Lotsch, *J. Mater. Chem. A* **2018**, *6*, 21558–21566.

12. "Bottom-up Formation of Carbon-Based Structures with Multilevel Hierarchy from MOF–Guest Polyhedra" Tiesheng Wang, Hyun-Kyung Kim, Yingjun Liu, Weiwei Li,James T. Griffiths, Yue Wu, **Sourav Laha**, Kara D. Fong, Filip Podjaski, Chao Yun, R. Vasant Kumar, Bettina V. Lotsch, Anthony K. Cheetham, Stoyan K. Smoukov, *J. Am. Chem. Soc.* **2018**, *140*, 6130–6136.

11. "Color Tuning in Garnet Oxides: The Role of Tetrahedral Coordination Geometryfor 3d Metal Ions and Ligand–Metal Charge Transfer (Band-Gap Manipulation)" Anupam Bhim, **Sourav Laha**, Jagannatha Gopalakrishnan, Srinivasan Natarajan,*Chem. Asian J.* **2017**, *12*, 2734–2743 (**Cover Feature, highlighted in Chem Views magazine**).

10. "Unique Colours of 3d Transition Metal Substituted Lyonsite Molybdates and TheirDerivatives: The Role of Multiple Coordination Geometries and Metal–Metal Charge Transfer" **Sourav Laha,** Srinivasan Natarajan, Jagannatha Gopalakrishnan, *Eur. J. Inorg. Chem.* **2016**, 3883–3891.

9. "Stabilization of Tetrahedral ($Mn^{5+}O_4$) Chromophore in Ternary Barium Oxides as a Strategy towards Development of new Turquoise/Green Colored Pigments" **Sourav Laha,** Subramani Tamilarasan, Srinivasan Natarajan, Jagannatha Gopalakrishnan, *Inorg. Chem.*, **2016**, *55*, 3508–3514.

8. "$YIn_{0.9}Mn_{0.1}O_3$-ZnO Nano-Pigment Exhibiting Intense Blue Color with Impressive Solar Reflectance" Sheethu Jose, Anaswara Jayaprakash, **Sourav Laha,** S. Natarajan, K. G. Nishanth, M. L. P. Reddy, *Dyes and Pigments* **2016**, *124*, 120– 129.

7. "Exploring the Colour of 3d Transition-Metal Ions in Trigonal Bipyramidal Coordination:

Identification of Purple-Blue (CoO_5) and Beige-Red (NiO_5) Chromophores in $LiMgBO_3$ Host" Subramani Tamilarasan, **Sourav Laha,** Srinivasan Natarajan, Jagannatha Gopalakrishnan, *Eur. J. Inorg. Chem.* **2016**, 288–293.

6. "Li_2MnO_3: A Rare Red-Coloured Manganese(IV) Oxide Exhibiting Tunable Red– Yellow–Green Emission" S. Tamilarasan, **Sourav Laha,** S. Natarajan J. Gopalakrishnan, *J. Mater. Chem. C* **2015**, *3*, 4794–4800.
5. "Oxygen-participated Electrochemistry of New Lithium-rich Layered Oxides Li_3MRuO_5 (M = Mn, Fe)" **S. Laha,** S. Natarajan, J. Gopalakrishnan, E. Morán, R. Sáez-Puche, M. Á. Alario-Franco, A. J. Dossantos-García, J. C. Pérez-Flores, A. Kuhn, F. García-Alvarado, *Phys. Chem. Chem. Phys.* **2015**, *17*, 3749–3760.
4. "Green Colored Nano-Pigments Derived from Y_2BaCuO_5: NIR Reflective Coatings"S. Jose, A. Prakash, **S. Laha,** S. Natarajan, M. L. P. Reddy, *Dyes and Pigments* **2014**, *107*, 118–126.
3. "Li_3MRuO_5 (M = Co, Ni), New Lithium-Rich Layered Oxides Related to $LiCoO_2$: Promising Electrochemical Performance for Possible Application as Cathode Materials in Lithium Ion Batteries" **S. Laha,** E. Morán, R. Sáez-Puche, M. Á. Alario-Franco, A. J. Dossantos-Garcia, E. Gonzalo, A. Kuhn, S. Natarajan, J. Gopalakrishnan, F. García-Alvarado, *J. Mater. Chem. A*. **2013**, *1*, 10686–10692.
2. "New Rocksalt-Related Oxides $Li_3M_2RuO_6$ (M = Co, Ni) : Synthesis, Structure, Magnetism and Electrochemistry" **S. Laha,** E. Morán, R. Sáez-Puche, M. Á. Alario-Franco, A. J. Dossantos-Garcia, E. Gonzalo, A. Kuhn, F. García-Alvarado, T. Sivakumar, S. Tamilarasan, S. Natarajan, J. Gopalakrishnan, *J. Solid State Chem.***2013**, *203*, 160–165.
1. "$Ba_3(P_{1-x}Mn_xO_4)_2$: Blue/Green Inorganic Materials Based on Tetrahedral Mn(V)" **Sourav Laha,** Rohit Sharma, S. V. Bhat, M. L. P. Reddy, J. Gopalakrishnan, S. Natarajan, *Bull. Mater. Sci.* **2011**, *34*, 1257-1262.

Presentations

Oral presentations:

1. **In quest of synergy: Understanding the entropy effect in disordered materials for enhanced energy applications,** An invited lecture given in an International Conference on 'Advances in Functional Materials and Applications' organized by BITS Pilani, K K Birla Goa Campus, 20th – 22nd February 2025.
2. **Coordination polymers: Materials for cost-effective environment and energy applications,** An invited talk given in '51st National Seminar on Crystallography' organized by Indian Crystallographic Association (ICA) and VNIT Nagpur, 27th – 29th November 2024.
3. **Prussian blue analogues to oxides: Exploration of transition metal-based materials for efficient and cost-effective energy applications,** A short-invited talk given in a national conference on 'Recent Trends in Chemical Science and Technology (RTCST-2024)' organized by IIT-Patna, 1st – 2nd March 2024.
4. **New Energy Materials Based on Transition Metal Oxides: Lithium-ion BatteryCathodes and Electrocatalysts for Water Oxidation,** An invited talk given in an international webinar on 'Sparking Factes of Chemistry', 27th February 2021 at Seethalakshmi Ramaswami College, Bharathidasan University, Tiruchirapalli, Tamilnadu, India.
5. **Exploring Transition Metal Oxides Towards Development of New FunctionalMaterials:**

Lithium-ion Battery Cathodes, Inorganic Pigments and Frustrated Magnetic Perovskite Oxides, Thesis colloquium on 2nd June, 2016 at Solid State and Structural Chemistry Unit, IISc, Bangalore.

6. **On the Synthesis of $Li_3M_2RuO_6$ (M = Co, Ni) and Their Structural, Magnetic and Electrochemical Characterization**, A talk given in *VII eme Rencontre Franco-Espagnole sur la Chimie et la Physique de l'Etat Solide,* 14th June, 2012 in Paris, France.
7. **Synthesis of Perovskite Related Solids by Metathesis Reactions: Some Surprising Results,** A talk given in Unit day and in-house symposium, 15th December, 2011 at Solid State and Structural Chemistry Unit, IISc, Bangalore.

Conferences and Workshops:

1. International Conference on 'Advances in Functional Materials and Applications (AFMA-2025)' organized by BITS Pilani, K K Birla Goa Campus, 20th – 22nd February 2025.
2. '51st National Seminar on Crystallography' organized by Indian Crystallographic Association (ICA) and VNIT Nagpur, 27th – 29th November 2024.
3. National conference on 'Recent Trends in Chemical Science and Technology (RTCST-2024)' By IIT-Patna, 1st – 2nd March 2024.
4. International Conference on "Frontiers in Solid State Research" Max Planck Institute for Solid State Research, 17th – 18th July, 2019 in Stuttgart.
5. European Materials Research Society Spring meeting 2019, 27th – 31st May, in Nice, France.
6. Scientific Advisory Board Meeting 2018, 12th – 14th November at Max Planck Institute for Solid State Research, Stuttgart, Germany.
7. JSPS Core-to-Core Workshop "Novel Quantum and Functional Materials" Max Planck Institute for Solid State Research, 07th – 09th August, 2017 in Stuttgart.
8. International Conference on "Directions in Materials Science" Jawaharlal Nehru Centre for Advanced Scientific Research, 30th Nov – 01st Dec, 2013 in Bangalore, India.
9. VII eme Rencontre Franco-Espagnole sur la Chimie et la Physique de l'Etat Solide, 13th – 15th June, 2012 in Paris, France.

Extracurricular Activities

- Member of the 'Convocation Committee' of the first convocation of IIPE, Visakhapatnam (held on 21st January 2022).
- Conducted regular group seminars at Department of Nanochemistry, MPI-FKF.
- Regularly participate in endurance running (10 Km, half marathon, marathon) and triathlon events.
- Served as convener Swimming Club, IISc (2014-2016).
- Successfully organized, participated and won medals in different sports events such as athletics, swimming and triathlon at IISc.
- Served as a student representative at SSCU, IISc (2011-12) and as a member of governing body of Students' Council, IISc (2014-15).

- ❖ Volunteered in many IISc events including convocations.

References

1. **Prof. S. Natarajan**
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