Subrata Nath

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Objective

To take a challenging role and make significant contributions using my skill and experience in the multiple applications in Material Chemistry through R & D and chemistry research.

Current work profile

Postdoctoral research associate **Jan'2019- Mar'2021**

University of Duisburg-Essen, Essen, Germany

Institute Postdoctoral Fellow (IPDF) **Mar'2018– Dec'2018**

Indian Institute of Science education and Research Mohali,(IISERM) Punjab, India

PhD **Jul'2012 – Nov'2017**
Indian Institute of Technology Guwahati (IITG), Assam, India

- Synthesis and Characterization of Non-conventional Liquid Crystals, supramolecular organogel, sensing studies.
- Mesophase characterization using polarized light microscopy, DSC, X-ray diffraction.

Fellowships

Junior Research Fellowship

- IITG–**MHRD,** Govt. of India, (July 2012- June 2014).

Senior Research Fellowship

- IITG–**MHRD,** Govt. of India (July 2014- Nov 2017).

Education

2017 :**Ph.D** (Defense held on 23-11-2017, Indian Institute of Technology Guwahati)
Place of work: Indian Institute of Technology Guwahati.
Thesis title:-"Design and syntheses of some heterocyclic liquid crystals and organogelators"
Advisor : Prof. A. S. Achalkumar

2009: **Master's Degree – (M. Sc. Physical Chemistry: 73.1%)**
Department of Chemistry, Gauhati University, Assam, India.

2007: **Bachelor's Degree – (B. Sc., Passed with Chemistry Hons.; 65.8%)**
Debraj Roy College, Golaghat, Dibrugarh University, Assam, India.

Publications

1. ***Effect of photonic band gap on photoluminescence in dye-doped blue phase liquid crystal.*** Nurjahan Khatun, Vimala Sridurai, Ravindra K. Gupta, **Subrata Nath**, Madhu B. Kanakala, Swadhin Garain, Ammathnadu S. Achalkumar, Channabasaveshwara V. Yelamaggad and Geetha G. Nair *The Journal of Physical Chemistry B*, 2021, **125**, 11582-11590.
2. ***Tuning the solid state emission of liquid crystalline nitro-cyanostilbene by halogen bonding.*** **Subrata Nath**, Alexander Kappelt, Matthias Spengler, Bibhisan Roy, Jens Voskuhl, and Michael Giese*, *Beilstein J. Org. Chem.*, 2021, **17**, 9, 124-131.
3. ***Room Temperature Columnar Liquid Crystalline Materialsbased on Pyrazino[2,3-g]quinoxaline for Bright Green OLEDs.*** Vinod Kumar Vishwakarma, **Subrata Nath**, Monika Gupta, Deepak Kumar Dubey, Sujith Sudheendran Swayamprabha, Jwo-HueiJou, Santanu Kumar Pal, and Achalkumar Ammathnadu Sudhakar, *ACS Appl. Electron. Mater*. 2019, **1**, 9, 1959-1969.
4. ***A sensitive and selective sensor for picric acid detection with a fluorescence switching response.*** **Subrata Nath**, Suraj Kumar Pathak, Balaram Pradhan, Ravindra Kr. Gupta, K. Anki Reddy, G. Krishnamoorthy, A. S. Achalkumar, *New J. of Chem*, 2018,**42**, 5382-5394.
5. ***The Effect of regioisomerism on the mesomorphic and photophysicalbehavior of oxadiazole-based tris(N-salicylideneaniline)s: Synthesis and characterization***. **Subrata Nath,**[#] Suraj Kumar Pathak,[#] Joydip De, Santanu Kumar Pal and A. S. Achalkumar, *New J. of Chem*, 2017, **41**, 9908-9917. ([#] Equal contributor)
6. ***Contrasting effects of heterocycle substitution and branched tails in the arms of star-shaped molecules.*** Suraj Kumar Pathak, **Subrata Nath**,

Joydip De, Santanu Kumar Pal and A. S. Achalkumar, *New J. of Chem*.,2017, **41**, 4680-4688.

7. ***Star-shaped π-gelators based on oxadiazole and thiadiazoles: a structure-property correlation***. **Subrata Nath**, Suraj Kumar Pathak, Joydip De, Santanu Kumar Pal and A. S. Achalkumar, *Molecular system design and engineering*, 2017,**2**, 478-489.
8. ***Tuning the self-assembly and photophysicalproperties of bi-1,3,4-Thiadiazole derivatives through electron donor-acceptor interactions and their application in OLEDs.*** Abhay Kumar Yadav,[#] BalaramPradhan,[#] Hidayath Ulla,[#] **Subrata Nath**, Joydip De, Santanu Kumar Pal, M. N. Satyanarayan, A. S. Achalkumar, *J. Mater. Chem. C*,2017, **5**, 9345-9358.([#] Equal contributor)
9. ***Effect of regioisomerism on the self-assembly and photophysicalbehavior of 1,3,4-thiadiazole based polycatenars. (Hot article)*** S. K. Pathak, **S. Nath**, R. K. Gupta, D. S. Shankar Rao, S. K. Prasad and A. S. Achalkumar, *J. Mater. Chem. C*.2015, **3**, 8166-8182.
10. ***Columnar self-assembly of star-shaped luminescent oxadiazole and thiadiazole derivatives.*** S. K. Pathak, R. K. Gupta, **S. Nath**, D. S. Shankar Rao, S. K. Prasad and A. S. Achalkumar, *J. Mater. Chem. C*.2015, **3**, 2940-2952.

Conference Presentations

1. Presented a poster at ***46th German Liquid Crystal Conference,*** held at University of Paderborn, Germany, 27-29 March, 2019.
2. Presented a poster at ***FICS-2018*** held at IIT Guwahati, 06-08 December, 2018.
3. Oral presentation at National conference on Liquid Crystals (***NCLC-24***) held at IISER Mohali, Punjab, 11-13 Oct. 2017.
4. Oral presentation at UGC sponsored ***RTERCP-2017***, held at Debraj Roy College, Golaghat, 22-23 Sep. 2017.
5. Presented a poster at ***CHEMCONVENE'17,*** held at IIT Guwahati 25July, 2017.

6. Presented a poster at ***RESEARCH CONCLAVE'17*** held at IIT Guwahati 16-19 March, 2017.
7. Presented a poster at ***20th CRSI*** National Synposium in Chemistry held at Gauhati University, 03-05 February, 2017.
8. Presented a poster at ***FICS-2016*** held at IIT Guwahati, 08-10 December, 2016.
9. Presented a poster at ***REFLUX'16*** held at IIT Guwahati, 25-27 March, 2016.
10. Presented a poster at ***RESEARCH CONCLAVE'16*** held at IIT Guwahati 2016.
11. Presented a poster at National conference on Liquid Crystals (***NCLC-22***) held at DIT University, Dehradun, 21-23 Dec. 2015.
12. Oral presentation at ***Assam Science Society***, technical session held at Gauhati University, 15-02-2010.
13. Presented a poster at ***National Workshop on Catalysis*** held at TU during 21-23 Dec.2009.

Invited talks

- Webinar on "Exploring Career opportunities after graduation" organized by Dept. of Chemistry and Career Counseling & Guidance Cell, S. B. Deorah College, Guwahati, Assam, India on 7th July 2021.
- Seminar on "Exploring Career opportunities after graduation in Science" organized by Career Counseling Cell, North Guwahati College, Guwahati, Assam, India on 30th Dec. 2021.

Project experience

- M.Sc 4th semester project under the guidance of Dr. Anup Kr. Talukdar, Professor, Dept. of Chemistry, Gauhati University from Jan-June 2009.
  Project Title: ***"Incorporation of Cerium into MCM-48 network".***

- Completed a 6 months project (July-Dec. 2009), under the supervision of Dr. Anup Kr. Talukdar, Professor, Dept. of Chemistry, Gauhati University, India, sponsored by Assam Science, Technology and Environment Council (ASTEC), Guwahati-05 Assam.
  Project Title: ***"Synthesis, Characterisation and Modification of MCM-48".***

- Worked as a project fellow in a UGC-DAE-CSR-KC sponsored project, under the supervision of Dr. Anup Kr. Talukdar, Professor, Dept. of Chemistry, Gauhati University, India from Dec 2009 to Sep.2010.

Project Title: ***"Studies on Effect of Ion Beam irradiation on the nanostructured TiO_2 prepared by Nanocasting replication Method"***

- Part time research student under the supervision of Dr. Anup Kr. Talukdar, Professor, Dept. of Chemistry, Gauhati University, India from Oct 2010 to July 2012.

Training received

- Familiar with multi-step organic synthesis and techniques including handling of air and moisture sensitive reactions, organometallic reagents and routine organic transformations from milligram to multigram scale.

- Instrument handling and/or interpreting data from the following instruments:

  1. 600MHz NMR (Bruker), 400MHz NMR (Varian),
  2. FT-IR (Perkin-Elmer and thermoscifintic),
  3. UV-VIS spectroscopy (horibafluoromax),
  4. Luminescence Spectrfluorometer (Perkin-Elmer, Horiba),
  5. TRPL (Horiba Fluorohub^{TM})
  6. TGA (Mettler Toledo)
  7. DSC (Mettler Toledo and Q20),
  8. Polarizing optical microscope (Nikon Eclipse LV100POL)equipped with a programmable hot stage (Mettler Toledo FP90)
  9. HRMS (Agilent 1260 infinity 6520 accurate-mass),
  10. LCMS (Waters Q-Tof premier)
  11. Cyclic Voltammeter (Versa Stat 3 (Princeton Applied Research) instrument).

- Competent in preliminary characterization of liquid crystalline behavior.

- Proficient in Microsoft Word, Microsoft Excel, Origin, Microsoft power point, Gaussian 09W and GaussView5 for DFT studies, LCDiXray – XRD of LC molecules,Mercury - Crystal Structure Visualisation, WSxM for Atomic force microscopyand Chem-Draw software applications.

Other experiences

- Junior Administrative Assistant (Assam Secretariat, Govt of Assam, India) from 21/09/2010 to 15/07/2012.
- Induction training for Jr. A. A. Secretariat training School, Assam Administrative Staff College, Guwahati from 24/01/2012 to 29/02/2012.

Additional information

Gender : Male
Nationality : Indian
Date of Birth : 20/03/1985
Foreign Language Known: English

References

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I will be happy to mail you the reference letters and supporting credentials if necessary.

April 2022
Golaghat, Assam, India

Subrata Nath