

Curriculum Vitae

Personal and Contact Information

Dr. Arindam Chowdhury
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Education

1997-2002	PhD, Chemistry	Carnegie Mellon University, Pittsburgh, PA, USA (<i>Advisor: Linda Peteanu</i>) Dissertation: “ <i>Electronic Delocalization and Charge Transfer Properties of Chemical and Biological Systems as Measured by Stark Spectroscopy</i> ”
1995-1997	MSc., Chemistry	Indian Institute of Technology (IIT) Kanpur, UP, India
1992-1995	BSc., Chemistry	RKM College - Narendrapur, University of Calcutta, WB, India

Professional Experience

07/2012 - Associate Professor of Chemistry, IIT Bombay, Mumbai, India
05/2007-06/2012 Assistant Professor of Chemistry, IIT Bombay, Mumbai, India
07/2006-04/2007 Assistant Professor (Contract), Department of Chemistry, IIT Bombay, Mumbai, India
01/2005-06/2006 Post-doctoral Research Scientist, Department of Biochemistry and Molecular Biophysics, Columbia University Medical Center, New York, NY, USA (*with Eric. C. Greene*)
01/2003-12/2004 Post-doctoral Research Fellow, Department of Chemistry, Columbia University, New York, NY, USA (*with David. M. Adams*)
08/1997-05/2000 Teaching Assistant, Carnegie Mellon University, Pittsburgh, PA, USA

Awards and Honors

- Legacy Graduate Fellowship, Carnegie Mellon University 2001
- CSIR-NET Junior Research Fellowship, Govt. of India 1997

Research Interests

- Imaging, spectroscopy and dynamics of single fluorescent molecules/luminescent nanocrystals
- Develop high-throughput spectrally, polarization and time-resolved fluorescence microscopy techniques in order to probe chemical, materials and biological systems
- Photoluminescence and electroluminescence microscopy/spectroscopy of carrier localization centers in quantum-well/-rod based solid-state light emitting devices (ss-LEDs).
- Carrier dynamics of individual semiconductor nanocrystals (undoped/doped/alloyed) using spectrally-resolved photoluminescence imaging
- Understand spatial and temporal inhomogeneities in soft matter matrices using rotational and translational mobility of single fluorescent molecules/quantum-dots
- Understand origins of blinking, and carrier mobility and recombination processes in all-inorganic and hybrid (organic-inorganic) perovskite micro- and nano-crystals for solar PV applications
- Develop sensing methods for analyte distribution in heterogeneous media such as biological cells

Mentoring and Teaching

- Currently research group of 6 PhD and 2 MSc student(s) in addition to 1 post-doc
- Mentored 23 MSc Chemistry students for their Masters' Thesis Projects
- Hosted several summer students from 2007-2016, and one IITB student for UROP (2009)
- Mentored four external undergraduate students for MS/MTech thesis (6-12 month duration)

PhD Guidance

1. Dr. Suman De. **2007-2012**; *Dissertation title*: Insight on energetic and radiative recombination dynamics within individual carrier localization centers formed in InGaN/GaN Quantum-Well LEDs using spectrally resolved photoluminescence microscopy
2. Dr. Arunasish Layek. **2007-2012**; *Dissertation title*: Synthesis, carrier dynamics, and spectrally resolved photoluminescence imaging of individual quantum-confined semiconductor nanostructures
3. Dr. Sukanya Bhattacharyya, **2009-2014**; *Dissertation title*: Heterogeneity during plasticization of poly (vinylpyrrolidone) thin films: Insights from single-molecule fluorescence dynamics
4. Dr. Dharmender Kumar Sharma, **2009-2014**. *Dissertation title*: Probing heterogeneous systems using spectrally-resolved microscopy and single-molecule diffusion dynamics
5. Ms. Ramya C, **2011-**. *Thesis (Submitted) title*: Spatiotemporally-resolved photoluminescence spectroscopy of semiconductor and perovskite nano-/micro-crystals
6. Mr. Amitrajit Mukherjee, **2014-**. *Thesis Topic*: Development of New Methods to Probe Heterogeneity in Blinking Dynamics of Single Semiconductor Nanocrystals
7. Mr. Jaladhar Mahato, **2015-**. *Thesis Topic*: Polarization-resolved Fluorescence Microscopy to probe single-molecule navigational dynamics in heterogeneous media
8. Ms. Karishma B. Cotta, **2015-**. *Thesis Topic*: Understanding Efflux Pump Inhibition using Nanoparticle-Polymer Conjugates for Antibiotic Resistance (*co-advisor*)
9. Mr. Nithin Pathoor, **2016-**. *Thesis Topic*: Blinking and Spectral Dynamics of Individual Hybrid Perovskite Micro- and Nano-crystals
10. Mr. Abhik Bose, **2016-**. *Thesis Topic*: Probing local Structure and Dynamics of Amyloid Fibrils using Single-Molecule Fluorescence Microscopy

Selected Administrative and other Academic Activities

- Member of the Departmental Undergraduate Committee (DPGC), IIT Bombay (2017-)
- Faculty Advisor and Coordinator, SC/ST (Affirmative Action) Students Cell at IIT Bombay (2015-)
- Member, UG and PG Academic Performance Evaluation Committee (2015-) as Ex-officio
- Member, Department Policy Committee (DPC), Department of Chemistry (2014-2017)
- Secretary, Institute Faculty Meeting (IFM), IIT Bombay (2013-2015)
- Secretary, Faculty Search Committee (FSC), Department of Chemistry (2012-2014)
- Member of the Departmental Post-Graduate Committee (DPGC), IIT Bombay (2009-12)
- Faculty Coordinator, Departmental Academic Mentorship Program (DAMP), IIT Bombay (2009-)
- Redesigned and re-developed of the MSc physical chemistry laboratory at IIT Bombay
- Member, Course restructuring committee in Chemistry Department, IIT Bombay, 2007 and 2011
- Reviewer of manuscripts in reputed journals from *ACS*, *RSC*, and *Wiley*
- Reviewer for project proposals from within India as well as abroad

Knowledge Dissemination See list below for publications in international peer reviewed journals, patents, conferences presentations, invited talks and educational seminars

Publications in Peer-Reviewed Journals and Patents

2007-present (from IIT Bombay)

1. “Fluorescence blinking beyond nano-confinement: Spatially synchronous intermittency of entire perovskite micro-crystals”, Pathoor, N; Halder, A; Mukherjee, A; Mahato, J; Sarkar, S.K; **Chowdhury, A***; *Angewandte Chemie International Edition* (2018), *in press*. DOI: 10.1002/anie.201804852.
2. “Effect of atmosphere and light on photoluminescence intensity fluctuations of hybrid perovskite micro-crystals”, Halder, A; Pathoor, N; **Chowdhury, A***; Sarkar, S.K*; *The Journal of Physical Chemistry C* (2018), *in press*. DOI: 10.1021/acs.jpcc.8b03862.
3. “Single particle tracking to probe the local environment in ice-templated crosslinked colloidal assemblies”, Suresh, K; Sharma, D.K; Chulliyil, R; Sarode, K.D; Ravi Kumar, V; **Chowdhury, A***; Kumaraswamy, G*; *Langmuir* (2018), 34, 4603-4616.
4. “An approach to estimate spatial distribution of analyte within cells using spectrally-resolved fluorescence microscopy”, Sharma, D.K; Irfanullah, M; Basu, S.K; Madhu, S; De, S; Ravikanth, M; Jadhav, S; **Chowdhury, A***; *Methods and Applications in Fluorescence* (2017), 5, 014003-014013 [*Special Issue on Optics within Life Sciences (OWLS 2016)*]
5. “Heterogeneity in optical properties of a near white-light emitting Eu(III) chelate as revealed by spectroscopy at the sub-ensemble level” Irfanullah, M*; Sharma, D.K; Chulliyil, R; Layek, A; De, S; **Chowdhury, A***; *Chemical Physics Letters* (2017), 667, 247-253.
6. “Heterogeneity during plasticization of poly(vinylpyrrolidone): Insights from reorientational mobility of single fluorescent probes” Bhattacharya, S; Sharma, D.K.; De, S; Mahato, J; **Chowdhury, A***; *The Journal of Physical Chemistry B* (2016), 120, 1204-1215.
7. “Glycopolypeptide grafted bioactive polyionic complex vesicles (PICsomes) and their specific polyvalent interactions” Pandey, B; Mahato, J; Cotta, K.B; Das, S; Sharma, D.K; Gupta, S.S*; **Chowdhury, A***; *ACS Omega* (2016), 1(4), 600-612.
8. “Palladium Nanoparticles Supported on Fibrous Silica (KCC-1-PEI/Pd): A Sustainable Nanocatalyst for Decarbonylation Reactions” Kundu, P.K; Dhiman, M; Modak, A; **Chowdhury, A***; Polshettiwar, V*; Maiti, D*; *ChemPlusChem* (2016), 81, 1142-1146.
9. “Sensitized luminescence from water-soluble LaF₃:Eu nanocrystals via partially-capped 1,10-phenanthroline: time-gated emission and multiple lifetimes” Irfanullah, M*; Bhardwaj, N; **Chowdhury, A***; *Dalton Transactions* (2016), 45, 12483-12495.
10. “Synthesis of rare-earth doped ZnO nanorods and their defect-dopant correlated enhanced visible-orange luminescence”, Layek, A*; Banerjee, S; Manna, B; **Chowdhury, A**; *RSC Advances* (2016), 6, 35892-35900.
11. “Manifestations of varying grading level in CdSe/ZnSe core-shell Nanocrystals”, Sonawane, K.G; Agarwal, K.S; Phadnis, C; Sharma, D.K; Layek, A; **Chowdhury, A***; Mahamuni, S*; *The Journal of Physical Chemistry C* (2016), 120, 5257–5264.
12. “Colloidal CsPbBr₃ perovskite nanocrystals: Luminescence beyond traditional quantum dots”, Swarnkar, A; Chulliyil, R; Ravi, V.K; Irfanullah, M; **Chowdhury, A**; Nag, A*; *Angewandte Chemie International Edition* (2015), 54(51), 15424-28. [*selected Hot paper*]
13. “Fluorescent probe for detection of cyanide ion in aqueous medium: Cellular uptake and assay for β-glucosidase and hydroxynitrile lyase”, Agarwalla, H; Gangopadhyay, M; Sharma, D.K; Basu, S.K; Jadhav, S; **Chowdhury, A***; Das, A*; *Journal of Materials Chemistry B* (2015), 3, 9148-9156.

14. "Pseudohalide (SCN) doped methylammonium lead bromide (MAPbI₃) perovskites: A few surprises", Halder, A; Chulliyil, R; Subbiah, A.S; Khan, T; Chatteraj,S; **Chowdhury, A***; Sarkar, S.K*; ***The Journal of Physical Chemistry Letters*** (2015) 6, 3483-3489.
15. "Self healing hydrogels composed of amyloid nano fibrils for cell culture and stem cell differentiation" Jacob, R; Ghosh, D; Singh, P; Basu, S.K.; Jha, N; Das, S; Sukul, P; Patil, S; Sathaye, S; Kumar, A; **Chowdhury, A**; Malik, S; Sen, S; Maji, S*; ***Biomaterials*** (2015) 54, 97-105.
16. "Bioactive polymersomes self-assembled from amphiphilic PPO-Glycopolypeptides: Synthesis, characterization and dual-dye encapsulation" Das, S[#]; Sharma, D. K[#]; Chakrabarty, S; **Chowdhury, A***; Gupta, S.S*; ***Langmuir*** (2015) 31, 3402-3412. [[#] *Equal contributors*]
17. "Europium-doped LaF₃ nanocrystals with organic 9-oxidophenalenone capping ligands that display visible light excitable steady-state blue and time-delayed red emission" Irfanullah, M; Sharma, D.K; Chulliyil, R; **Chowdhury, A***; ***Dalton Transactions*** (2015), 44, 3082-3091.
18. "Probing differential hydration of poly(vinylpyrrolidone) thin films using tracer mobility: An insight from fluorescence correlation spectroscopy" Bhattacharya, S*; De, A; **Chowdhury, A***; ***The Journal of Physical Chemistry B*** (2014), 118, 5240-5249.
19. "Spectrally resolved optical microscopy using a transmission grating spectrograph: Importance of spatial selection", Sharma, D.K*; **Chowdhury, A***; ***Analyst*** (2014), 139, 473-481.
20. "Sensing Hg(II) *in vitro* and *in vivo* using a benzimidazole substituted BODIPY", Madhu, S; Sharma, D.K; Basu, S.K; Jadhav, S; **Chowdhury, A***; Ravikanth, M*; ***Inorganic Chemistry*** (2013), 52, 11136-11145
21. "Ultrannarrow and widely tunable Mn²⁺-induced photoluminescence from single Mn-doped nanocrystals of ZnS-CdS alloys", Hazarika, A; Layek, A; De, S; Nag, A; Debnath, S; Mahadevan, P; **Chowdhury, A**; Sarma, D.D*; ***Physical Review Letters*** (2013), 110, 267401-05. [*Focus article in Physical Review Letters: "A Quantum Dot Shows Its True Colors"* DOI: 10.1103/Physics.6.73; *Nature India Research Highlights: "Rainbow-Emitting Quantum Dots"*, 12 July 2013 DOI: 10.1038/india.2013.91]
22. "Plasticization of poly(vinylpyrrolidone) thin-films under ambient humidity: Insight from single-molecule tracer diffusion dynamics", Bhattacharya, S; Sharma, D.K; Saurabh, S; De, S; Sain, A; Nandi, A; **Chowdhury, A***; ***The Journal of Physical Chemistry B*** (2013), 117, 7771-7782.
23. "Quantum-confined stark effect in localized luminescent centers within InGaN/GaN quantum-well based light emitting diodes", De, S; Layek, A; Bhattacharya, S; Das, D.K; Kadir, A; Bhattacharya, A; Dhar, S, **Chowdhury, A***; ***Applied Physics Letters*** (2012) 101, 121919.
24. "A generalized three-stage mechanism of ZnO nanoparticle formation in homogeneous liquid medium", Layek, A; Mishra, G; Sharma, A; Spasova, M; Dhar, S; **Chowdhury, A***; Bandopadhyaya, R*; ***The Journal of Physical Chemistry C*** (2012) 116, 24757-24769.
25. "Carrier recombination dynamics through defect states of ZnO nanocrystals: From nanoparticles to nanorods", Layek, A; Manna, B; **Chowdhury, A***; ***Chemical Physics Letters*** (2012) 539-540, 133-138.
26. "Process for synthesis of Tb doped ZnO nanoparticles for total control over the UV to green luminescence intensity ratio and the tunability of UV luminescence (UVL)", Sharma, A; Layek, A; **Chowdhury, A**; Kundu, T; Singh, B.P; Dhar, S; ***PCT Int. Appl.*** (2012), WO 2012010949 A1 20120126.
27. "Insight on optoelectronic behaviors and carrier dynamics of individual localized luminescent centers within InGaN/GaN quantum-well LEDs", De, S; Das, D; Layek, A; Raja, A; Singh, M; Bhattacharyya, A; Dhar, S; **Chowdhury, A***; ***Applied Physics Letters*** (2011) 99, 251911. [*selected for Virtual Journal of Nanoscale Science & Technology, January 9, 2012 issue*]

28. “Two distinct origins of highly localized luminescent centers within InGaN/GaN quantum-well Light-Emitting Diodes”, De, S; Layek, A; Raja, A; Kadir, A; Gokhale, M; Bhattacharya, A; Dhar, S; **Chowdhury, A***; ***Advanced Functional Materials***, (2011), 21, 3828-3835 [selected as front-piece highlight article]
29. “ZnO nanocrystals in strong confinement regimes: Insight on relaxation dynamics of defect states responsible for the visible luminescence”, Layek, A; **Chowdhury, A***; ***International Journal of Nanoscience***, (2011), 10 (4,5), 681-685.
30. “Polarity selective etching: A self-assisted route for fabricating high density of *c*-axis oriented tapered GaN nanopillars”, Ghosh, A; Bhasker, H; Mukherjee, A; Kundu, T; Singh, B.P; Dhar, S*; De, S; **Chowdhury, A**; ***Journal of Applied Physics***, (2011), 110, 033528.
31. “Spectrally resolved photoluminescence imaging of ZnO nanocrystals at single-particle levels”, Layek, A*; De, S; Thorat, R; **Chowdhury, A***; ***The Journal of Physical Chemistry Letters***, (2011), 2(11), 1241-1247

1998-2007 (prior to IIT Bombay)

32. “Dynamic basis for one-dimensional DNA scanning by the mismatch repair complex Msh2-Msh6”, #Gorman, J; #**Chowdhury, A**; Surtees, J.A; Shimada, J; Reichman, D.R; Alani, E; Greene, E.C*; ***Molecular Cell***, (2007), 28(3), 359-370 (#***Equal contributors***); [highlighted in ***News and Views of Nature Structure and Molecular Biology*** (2008): “TIRF(ing) reveals Msh2-Msh6 surfing on DNA”]
33. “Molecular switch based on a biologically important redox reaction”. Yan, P; Holman, M.W; Robustelli, P; **Chowdhury, A**; Ishak, F.I; Adams, D.M; ***The Journal of Physical Chemistry B*** (2005), 109, 130-137.
34. “Self-organized perylene diimide nanofibers”, Yan, P; **Chowdhury, A**; Holman, M.W; Adams, D.M; ***The Journal of Physical Chemistry B*** (2005), 109, 724-730.
35. “Stark spectroscopy of size-selected helical H-aggregates of a cyanine dye templated by duplex DNA: Effect of exciton coupling on electronic polarizabilities”, **Chowdhury, A**; Yu, L; Raheem, I; Peteanu, L; Liu, L.A; Yaron, D.J; ***The Journal of Physical Chemistry A*** (2003), 107, 3351-3362. [special issue “George S. Hammond & Michael Kasha Festschrift”]
36. “The electronic properties of a model active site for blue copper proteins as probed by stark spectroscopy”, **Chowdhury, A**; Peteanu, L.A; Holland, P.L; Tolman, W.B; ***The Journal of Physical Chemistry B*** (2002), 106, 3007-3012.
37. “Characterization of chiral H- and J-aggregates of cyanine dyes formed by DNA templating using stark and fluorescence spectroscopy”, **Chowdhury, A**; Wachsmann-Hogiu, S; Bangal, P.R; Raheem, I; Peteanu, L.A; ***The Journal of Physical Chemistry B*** (2001), 105, 12196-12201.
38. “Stark spectroscopic studies of blue copper proteins: Azurin”, **Chowdhury, A**; Peteanu, L.A; Webb, M.A; Loppnow, G.R; ***The Journal of Physical Chemistry B*** (2001), 105, 527-534.
39. “Matrix and temperature effects on the electronic properties of conjugated molecules: an electroabsorption study of all-trans-Retinal”, Locknar, S.A; **Chowdhury, A**; Peteanu, L.A; ***The Journal of Physical Chemistry B*** (2000), 104, 5816-5824.
40. “Using stark spectroscopy to probe polymer and organic glass matrices”, Peteanu, L.A; **Chowdhury, A**; Locknar, S.A.; Premvardhan, L; ***Inter-American Photochemical Society Newsletter*** (1999), 22, 2.

41. "Effects of matrix temperature and rigidity on the electronic properties of solvatochromic molecules: Electroabsorption of Coumarin153", **Chowdhury, A**; Locknar, S.A; Premvardhan, L.L; Peteanu, L.A; ***The Journal of Physical Chemistry A*** (1999), 103, 9614-9625.
42. "Ground and excited state intra-molecular proton transfer in salicylic acid: an *ab initio* electronic structure investigation", Maheshwari, S.; **Chowdhury, A**; Sathyamurthy, N; Mishra, H; Tripathi, H.B; Panda, M; Chandrasekhar, J; ***The Journal of Physical Chemistry A*** (1999), 103, 6257-6262.

Conferences and Symposia

Oral Presentations

1. "An Approach to Estimate Spatial Distribution of Analyte within Cells", ***National Fluorescence Workshop and Conference (FCS 2017)***, IIT Guwahati, India 2017.
2. "Spatiotemporal Heterogeneity in Optoelectronic Behaviors of Perovskite Micro-/Nano-Crystals", ***International Conference on Photochemistry and its Applications (ICPA)***, Mahatma Gandhi University, Kottayam, Kerala, India 2017.
3. "Can Semiconductor Micro-Crystals Blink Like Their Nano-Siblings?", ***Kaleidoscope 4***, International Centre Goa, Goa, India 2017.
4. "Spatiotemporal Heterogeneity in Photoluminescence of Perovskite Micro-/Nano-Crystals", ***National Conference on Luminescence and its Applications (NCLA 2017)***, CSIR- Indian Institute of Chemical Technology, Hyderabad, India 2017.
5. "Spatiotemporal Heterogeneity in Optoelectronic Behaviors of Perovskite Micro-/Nano-Crystals", ***Chemistry Interfacing with Biology and Physics***, IISER Kolkata, Mohanpur, India 2017.
6. "Tracer Navigation Dynamics in Heterogeneous Media", ***Optics Within Life Sciences (OWLS)***, Tata Institute of Fundamental Research, Mumbai, India 2016.
7. "Probing Spatiotemporal Heterogeneity in Optoelectronic Behaviors of Perovskite Micro-/Nano-Crystals", ***International Conference on Nanoscience and Technology (ICONSAT 16)***, IISER Pune, India 2016.
8. "Can we use spectrally resolved microscopy to probe surface charge/polarity of amyloid fibers?", ***Biophysics Pashchim Seminar Series***, IIT Bombay, Mumbai, India 2015.
9. "Single-Nanocrystal PL Spectroscopy and Dynamics to Probe Inhomogeneity in Complex Systems", ***Mumbai Pune Semiconductor Meeting***, IIT Bombay, Mumbai, India 2015.
10. "Single-Molecule Fluorescence Spectroscopy: Understanding Heterogeneity in Materials by Interrogating One Molecule at a Time", ***National Conference on Sustainable Chemistry***, Sant Gadge Baba Amravati University, Amravati, India 2015.
11. "Single-Molecule Fluorescence Spectroscopy and Dynamics: Overview and Challenges", ***Kaleidoscope 1***, International Center, Goa, 2014
12. "Spatial Distribution of Analytes within Cells: Can Spectrally-Resolved Fluorescence Microscopy Help?", ***Advances in Spectroscopy and Ultrafast Dynamics (ASUD)***, Indian Association for the Cultivation of Science (IACS), Kolkata, India 2014.
13. "Probing Individual Nano-Aggregates of a White-Light Emissive Europium Chelate using Spectrally-Resolved Photoluminescence Microscopy" ***8th Asian Photochemistry Conference (APC-2014)***, Trivandram, Kerala, India 2014.
14. "Insight on Carrier Localization Mechanisms in (In,Ga)N Quantum-Well based LEDs using Spectrally Resolved Luminescence Microscopy", ***Indo-French Physics Conference*** (organized by CEFIPRA), Indian Institute of Science (IISc), Bangalore, India 2014.

15. "Energetics in Doped Nanocrystals: Insights from Single-Particle Luminescence spectroscopy", **National Conference on Energy and Environment (NC2E)**, Pune University, Pune, India 2014.
16. "Energetic Inhomogeneity in Nanocrystals: Insights from Single-Emitter Spectroscopy" **16th National Symposium in Chemistry (NSC-16)**, Chemical Research Society of India (CRSI), IIT Bombay, Mumbai, India 2014.
17. "Probing Energetic Inhomogeneity in Semiconductor Nanocrystals using Single-Particle Spectroscopy" **Trombay Symposium of Radiation and Photochemistry (TSRP)**, Bhaba Atomic Research Center (BARC), Mumbai, India 2014.
18. "Plasticization of Polymer Thin-Films: Insights on Heterogeneity from Single Molecule Diffusion Dynamics", **National Conference on Photosciences: Contemporary Challenges and Future Perspectives**, Jadavpur University, Kolkata, India 2013.
19. "Plasticization of Polymer Thin-Films: Insights from Single-Molecule Tracer Diffusion Dynamics", **Polymer Processing Society (PPS) Asia/Australia Conference**, Mumbai, India 2013.
20. "Insight on Carrier Localization Mechanisms in (In,Ga)N Quantum-Well LEDs using Spectrally- and Time-resolved Photoluminescence Microscopy", **ISRAPS Discussion Meeting on Advanced Techniques in Radiation and Photochemistry**, Indian Institute of Science Education and Research (IISER), Pune, India, 2013.
21. "Understanding Energetic Inhomogeneity in Semiconductor Nanocrystals using Single-Particle Fluorescence Spectroscopy", **New Directions in Chemical Sciences (NDCS)**, Indian Institute of Technology Delhi, New Delhi, India 2012.
22. "Single-Emitter Spectroscopy to Probe Inhomogeneity in Complex Systems", **National Fluorescence Workshop and Conference (FCS 2012)**, Saha Institute of Nuclear Physics, Kolkata, India 2012.
23. "Insight on Carrier Localization Mechanisms in (In,Ga)N Alloy based Quantum-Well LEDs using Spectrally-Resolved Microscopy", **Chemistry of Functional Materials (CFM)**, Goa, India 2012.
24. "Insight on Carrier Localization Mechanisms in InGaN Alloy Based Multiple Quantum-Well LEDs", **International Conference on Pure and Applied Chemistry (ICPAC)**, Mauritius 2012.
25. "Insight on Carrier Localization Mechanisms in (In,Ga)N Quantum-Well LEDs using Spectrally- and Time-resolved Photoluminescence Microscopy", **Mini-Symposium on Spectroscopy and Dynamics**, Indian Institute of Science and Education Research (IISER) Pune, India 2012.
26. "Insight on Carrier Localization Processes in (In,Ga)N Alloy based Quantum-Well LEDs", **Spectroscopy and Dynamics of Molecules and Clusters (SDMC-IX)**, Bangalore, India 2012.
27. "Photoluminescence Intermittency of Highly Localized Emission Centers within InGaN/GaN Quantum-Well (QW) LEDs", **International Conference on Luminescence (ICL2011)**, University of Michigan, Ann Arbor, MI, USA 2011.
28. "On the Origins of Highly Radiative Traps Spontaneously Formed within InGaN/GaN Multiple Quantum-Well based Light Emitting Devices" **Fluorescence 2009**, Tata Institute of Fundamental Research, Mumbai, India 2009.
29. "Visualizing the Dynamics of Individual DNA-Mismatch-Repair Proteins in Action", **ISRAPS Discussion Meeting on Advanced Techniques in Radiation and Photochemistry**, Bhaba Atomic Research Center (BARC), Mumbai, India. September 2008.

Poster Presentations

1. "Can polarization-resolved super-resolution imaging of single-molecules provide insights on tracer navigation mechanisms in heterogeneous media?", **Gordon Conference on Image Science**, Stonehill College, Boston, MA, USA, 2016.

2. “Can Polarization-Resolved Super-resolution Imaging of Single-Molecules Provide Insights on Tracer Navigation Mechanisms in Heterogeneous Media?”, *Soft Matter Young Investigators Meet (SM-YIM)*, Pondicherry, India 2015
3. “Single-molecule tracer diffusion dynamics in crowded heterogeneous systems: Hop, stop and jump?”, *Faraday Discussions on Single Molecule Spectroscopy*, London, UK 2015.
4. “Spatially-Resolved Single-Emitter Spectroscopy: Rare Events and Unexpected Phenomenon”, *Kaleidoscope 2*, International Centre, Goa, India 2015
5. “Insights on Heterogeneity from Single-Emitter Measurements: Some Ideas and Challenges”, *Kaleidoscope 1*, International Centre, Goa, India 2014
6. “Probing Tracer Diffusion Disordered Media using Single-Molecule Fluorescence Dynamics”, *Young Investigator’s Meeting (YIM)*, Trivandram, Kerala, India 2009.

Research Seminars and Invited Talks

- Department of Chemistry, *Carnegie Mellon University*, Pittsburgh, PA, USA. July 2016
- Department of Chemical Sciences, *Tata Institute of Fundamental Research (TIFR)*, Mumbai, India. November 2014
- Department of Chemistry, *Indian Institute of Technology Kanpur*, India, September 2014
- *Ramakrishna Mission Residential College*, Narendrapur, WB, India. July 2014
- *Mashelkar Endowment Lecture*, National Chemical Laboratories (NCL), Pune, India. March 2014
- *Indian Association for the Cultivation of Science*, Jadavpur, Kolkata, India. December 2013
- National Center for Photovoltaic Research and Education (NCPRE) *IIT Bombay*, Mumbai, India. March 2012
- *Paul Drude Institute (PDI)* for Semiconductor Physics, Berlin, Germany. June, 2011
- Institute for Structural Biology and Biophysics, *Research Center Juelich*, Achen, Germany. June 2010
- *National Center for Biological Sciences (NCBS)*, Bengaluru, India. October 2008
- *National Chemical Laboratories (NCL)*, Pune, India. August, 2008
- Department of Chemical Sciences, *Tata Institute of Fundamental Research (TIFR)*, Mumbai, India. September 2007
- School of Biosciences and Bioengineering, *IIT Bombay*, Mumbai, India. March 2007
- Department of Chemistry, *Carnegie Mellon University*, Pittsburgh, PA, USA. December 2006
- Department of Chemistry, *Presidency College*, Calcutta, India. November 2006
- Department of Chemistry, *Vishwabharati University*, Shantiniketan, India. November 2006
- Nanoscience Symposium, *IIT Bombay*, Mumbai, India. October 2006

General Scientific and Educational Lectures for Outreach

- “*Atomic Structure and Chemical Bonding*”, Brijlal Biyani Science College, Amravati University, December 2016
- “*Electronic Structure of Atoms and Molecules*”, Vaze College of Arts, Science and Commerce, Mumbai University, February 2016
- “*Nobel Prize in Chemistry 2014*”, Annual Public Lecture Series, IIT Bombay, November 2014
- “*Visualizing the Dynamics of DNA Repair Proteins in Action*”, Sephia College, Mumbai University, part of The Royal Society of Chemistry (RSC), West India Chapter International Year of Chemistry (IYC) *Legacy Symposia*, July 2013.
- “*Electronic Structure of Atoms*”, Kendriya Vidyalaya Bhandup, Mumbai, December 2012.

- “**Single-Molecule and Single-Nanocrystal Fluorescence Spectroscopy**”, Nagpur University, The Royal Society of Chemistry (RSC), West India Chapter International Year of Chemistry (IYC) *Challenge Symposia*, September 2012.
- “**Visualizing Single DNA Molecules**” as a part of *Exciting Science Series* (for high-school students), National Chemical Laboratory (NCL), Pune, India. May 2010.
- “**Quantum Perspectives of Nanoscience**”, Ruia College, Mumbai University, lecture series organized by *The Royal Society of Chemistry, West India Chapter*. September 2009.
- “**Have you seen your DNA?**”, *Bombay Science Fair*, Nehru Science Center, Mumbai. January 2008.