Curriculum Vitae

Personal and Contact Information

Dr. Arindam Chowdhury
Department of Chemistry
IIT Bombay, Powai, Mumbai 700046, India

Phone: +91.22.25767154(O); +91.9769397154(M)
E-Mail: arindam@chem.iitb.ac.in
Web: www.chem.iitb.ac.in/~arindam

Education

PhD, Chemistry (2002)	Carnegie Mellon University, Pittsburgh, USA Dissertation: "*Electronic Delocalization and Charge Transfer Properties of Chemical and Biological Systems as Measured by Stark Spectroscopy*"
MSc, Chemistry (1997)	Indian Institute of Technology (IIT) Kanpur, India
BSc, Chemistry (1995)	Ramakrishna Mission College Narendrapur, University of Calcutta, India

Professional Experience

2018- Professor of Chemistry, IIT Bombay, Mumbai, India

2012-2018 Associate Professor of Chemistry, IIT Bombay, Mumbai, India

2007-2012 Assistant Professor of Chemistry, IIT Bombay, Mumbai, India

2006-2007 Assistant Professor (Contract), Department of Chemistry, IIT Bombay, Mumbai, India

2005-2006 Post-doctoral Research Scientist, Department of Biochemistry and Molecular Biophysics, Columbia University Medical Center, New York, USA

2003-2004 Post-doctoral Research Fellow, Department of Chemistry, Columbia University, New York, USA

1997-2000 Teaching Assistant, Carnegie Mellon University, Pittsburgh, USA

Awards and Honors

- Department best teacher award (2018), IIT Bombay
- Legacy Graduate Fellowship, Carnegie Mellon University 2001
- CSIR-NET Junior Research Fellowship, Govt. of India 1997

Research Interests

- ***Decipher and quantify heterogeneity of physical parameters in space and time***
- ***Imaging, spectroscopy & dynamics of single emitters (fluorescent molecules/nanocrystals)***
- ***Develop spectrally-/polarization-resolved fluorescence microscopy techniques to probe fundamental processes and heterogeneity in soft and hard materials and biological systems***
- Photo-/Electro-luminescence micro-spectroscopy of quantum-well based solid-state light emitting devices (ss-LEDs)
- Carrier dynamics of individual semiconductor nanocrystals
- Inhomogeneities in soft materials using super-resolved single-molecule diffusion dynamics
- Blinking, spectral diffusion and carrier dynamics in perovskites nano-/micro-crystals used for solar PV/LED applications
- Develop methods for detection of analytes in heterogeneous media
- Long-range (>100 nm) excitation energy transport in self-assembled soft-materials and perovskites

Mentoring and Teaching

- Current research group of 6 PhD and 2 MSc student(s) in addition to 1 post-doctoral fellow
- Mentored 24 MSc Chemistry students for their Masters' Thesis Projects
- Hosted several summer students from 2007-2018, and one IITB student for UROP (2009)
- Mentored six external undergraduate students for MS/MTech thesis (6-12 month duration)

PhD Guidance

1. Dr. Suman De. ***2007-2012****; Dissertation:* Insight on energetic and radiative recombination dynamics within individual carrier localization centers formed in InGaN/GaN Quantum-Well LEDs using spectrally resolved photoluminescence microscopy. *[University of Sheffield Neurosceince Institute, UK]*
2. Dr. Arunasish Layek. ***2007-2012****; Dissertation:* Synthesis, carrier dynamics, and spectrally resolved photoluminescence imaging of individual quantum-confined semiconductor nanostructures. *[Adamas University, WB, India]*
3. Dr. Sukanya Bhattacharyya, ***2009-2014***; *Dissertation:* Heterogeneity during plasticization of poly (vinylpyrrolidone) thin films: Insights from single-molecule fluorescence dynamics *[post-doc at IACS, Kolkata, India]*
4. Dr. Dharmender Kumar Sharma, ***2009-2014***. *Dissertation:* Probing heterogeneous systems using spectrally-resolved microscopy and single-molecule diffusion dynamics. *[MANIT, Bhopal, India]*
5. Dr. Ramya Chullyil, ***2011-2017***. *Dissertation:* Spatiotemporally-resolved photoluminescence spectroscopy of semiconductor and perovskite nano-/micro-crystals *[UG college at Pune University, India]*
6. Dr. Amitrajit Mukherjee, ***2013-2020***. *Dissertation:* Methodologies for photoluminescence intermittency analyses: Understanding of various carrier recombination processes in single nanocrystals. *[post-doc at KU, Leuven, Belgium]*
7. Dr. Jaladhar Mahato, ***2014-2021***. *Dissertation:* Probing molecular interactions and orientations using spectrally and polarization-resolved fluorescence microscopy. *[post-doc at Iowa State University]*
8. Dr. Karishma B. Cotta, ***2014-2020***. *Dissertation:* A study of nanoparticle and peptide nucleic acid based anti-TB therapeutic approaches to target extracellular and intra-macrophage mycobacteria
9. Dr. Nithin Pathoor, ***2015-2021***. *Dissertation:* Spatially synchronous photoluminescence blinking of individual perovskite micro-crystals *[post-doc at NUS, Singapore]*
10. Ms. Rohita Roy, **2017-2023** *Thesis Topic*: Estimating aromatic pollutants using fluorescence imaging of whole-cell biosensors
11. Mr. Tejmani Behera, **2017-2023**. *Thesis Topic*: Electroluminescence microscopy, and polarization-resolved micro-spectroscopy of individual hybrid-perovskite micro-crystals
12. Mr. Rajat Mukherjee, **2019-**. *Thesis Topic*: Understanding the dynamics of polymer Cavities near glass transition using single-molecule rotational dynamics and molecular-dynamics simulations.
13. Ms. Mansi Kothari, **2021-**. *Thesis topic:* Chiro-optical imaging – fluorescence detected circular dichroism and circularly polarized luminescence microscopy
14. Ms. Shruti Singh, **2022-**. *Thesis topic:* Electroluminescence and photoluminescence hyper-spectral imaging of individual perovskite crystals

Administrative and other Academic Activities

- Vice Chairperson of GATE-JAM Examinations 2022 at IIT Bombay
- Member of the Advisory Board, Chemical Communications (RSC), 2020-
- Member, Academic Rehabilitation Program Committee (ARPC), 2018-21
- Faculty Advisor and Coordinator, SC/ST (Affirmative Action) Students Cell at IIT Bombay (2015-21)
- Member, Undergraduate Academic Performance Evaluation Committee (UGAPEC) (2015-21)

- Member, Postgraduate Academic Performance Evaluation Committee (PGAPEC) (2015-21)
- Member, Scholarship Committee of IIT Bombay (2015-21)
- Member, Department Policy Committee (DPC), Department of Chemistry (2014-17)
- Secretary, Institute Faculty Meeting (IFM), IIT Bombay (2013-15)
- Secretary, Faculty Search Committee (FSC), Department of Chemistry (2012-14)
- Member of the Departmental Post-Graduate Committee (DPGC), IIT Bombay (2009-12)
- Faculty Coordinator, Departmental Academic Mentorship Program (DAMP), IIT Bombay (2009-18)
- In charge, Redesign and developed of the MSc physical chemistry laboratory at IIT Bombay
- Member, Course restructuring committee in Chemistry Department, IIT Bombay, 2007 and 2011

Peer-reviewed Journal Publications, Book Chapters and Patents

(In previous five years)

1. "Probing diffusion of charge carriers beyond grain boundaries during self-assembly of $CsPbBr_3$ micro-crystals to thin films" Arora, D; Mukherjee, A; Dhepe, A; **Chowdhury, A**[*]; *manuscript in preparation*.

2. "Emissivity resolved correlation study of multiple blinking parameters: Unifying defect-mediated carrier recombination mechanisms in semiconductor nanocrystals" Mukherjee, A[*]; Phadnis, C; **Chowdhury, A**[*]; *Submitted.*

3. "What determines spatiotemporal synchronicity of photoluminescence blinking in organo-lead halide perovskite micro-rods/-wires?" Behera, T and **Chowdhury, A**[*]; *Submitted*

4. "Mapping Nanoscale Surface Polarity of α-Synuclein Amyloid Fibrils" Mahato, J; Mukherjee, R; Bose, A; Mehra, S; Kumar, R; Maji, S.K[*]; **Chowdhury, A**[*]; **(2023)** *Submitted.*

5. "Microscopic Perspective of Synergy between Localized Surface Plasmon Resonance and Disruption of Dye Aggregates in Metal Nanoparticle-Enhanced Fluorescence", Prakash, S; Behera, T; **Chowdhury, A**; Datta, A[*]; ***ACS Applied Nano Materials*** **(2023)**, *accepted.*

6. "Buried Interface Passivation of Perovskite Solar Cells by ALD Al_2O_3" Ghosh, S; Pariari, D; Behera, T; Boix, P; Ganesh, N; Basak, S; Vidhan, A; Sarda, N; Mora-Sero, I; **Chowdhury, A**; Narayan, K; Sarma, D. D.; Sarkar, S. K.[*]; ***ACS Energy Letters*** **(2023)** 8, 2058-2065.

7. "Photonically cured solution processed SnO_2 thin films for high efficiency and stable perovskite solar cells and mini-modules" Sarda, N; Vidhan, A; Basak, S; Hazra, P; Behera, T; Ghosh, S; Choudhary, R; **Chowdhury, A**; Sarkar, S. K.[*]; ***ACS Applied Energy Materials*** **(2023)**, 6, 7, 3996–4006.

8. "Edge vs. Interior Mn^{2+} doping in 2D Layered Butyl Ammonium Lead Bromide Perovskite Single Crystal" Dutta, T; Kashid, S; Hooda, R; Sheikh, T; **Chowdhury, A**; Nag, A[*]; ***The Journal of Physical Chemistry C*** **(2022)**, 126, 21109-21116.

9. "Deciphering effective modes of communication between spatially-segregated photo-carriers leading to emission intermittency of entire micro-crystals" Pathoor, N[*]; **Chowdhury, A**[*]; ***ACS Photonics*** **(2022)**, 10, 49-57.

10. "Unraveling the dual emission in single quantum-dots by single particle spectroscopy" Layek, A[*]; Arora, V; Sapra, S; Chowdhury, A; ***Journal of Physics Conference Series*** **(2022)**, 2349, 012026; *DOI:10.1088/1742-6596/2349/1/012026*.

11. "Insights on anisotropic emission of (diffused) photo-carriers in hybrid perovskite micro-rods" Behera, T[*]; **Chowdhury, A[*]**; ***The Journal of Physical Chemistry C*** **(2022)**, 126, 15819−15828.

12. "Deciphering modes of long-range energy transfer in perovskite crystals using confocal excitation and wide-field fluorescence spectral imaging" Behera, T; Pathoor, N; Mukherjee, R; **Chowdhury, A[*]**; ***Methods and Applications in Fluorescence*** **(2022)**, 10, 044013-044125. [*Special issue on Fluorescence Research in India*]

13. "Spectrally-resolved FRET microscopy of α-synuclein phase-separated liquid droplets" Mahato, J; Ray, S; Maji, S.K; and **Chowdhury, A[*]**; ***Methods in Molecular Biology Series: Protein Aggregation*** **(2022)**, Vol 2551, Chapter 27; Springer-Verlag (New York) ISBN 1071625969.

14. "Investigating spatiotemporal correlation of multi-state photoluminescence intermittency in organo-lead bromide microcrystal films" Pathoor, N; Mukherjee, A; **Chowdhury, A[*]**; ***The Journal of Physical Chemistry C*** (**2022**), 126, 5991-5999.

15. "Investigation of structural heterogeneity in individual amyloid fibrils using polarization-resolved microscopy", Mahato, J[*]; Ray, K.K[*]; Das, S; Kadu, P; Maji, S.K; **Chowdhury, A[*]**; ***The Journal of Physical Chemistry B*** **(2021)**, 125, 13406–13414. *[Kankan Bhattacharya Festschrift]*

16. "Automated detection and multi-level photoluminescence intermittency (blinking) analyses of semiconductor quantum dots" Mukherjee, A; Chowdhury, A; ***Patent application filed*** **(2021)**. *Patent No.: PAT/CH/134033010-1/20-21.*

17. "Influence of atmospheric constituents on spectral instability and defect-mediated carrier recombination in hybrid perovskite nanoplatelets" Mukherjee, A; Roy, M; Pathoor, N; Aslam, M[*]; **Chowdhury, A[*]**; ***The Journal of Physical Chemistry C*** **(2021)**, 125, 17133-17143. *[D.D Sarma Festschrift]*

18. "Tunable multiplexed whole-cell biosensors as environment diagnostics for ppb-level detection of aromatic pollutants" Roy, R; Ray, S; **Chowdhury, A[*]**; Anand, R[*]; ***ACS Sensors*** **(2021)** 6(5), 1933–1939.

19. "Polarization-resolved single-molecule tracking reveals strange dynamics of fluorescent tracers through a deep rubbery polymer network", Mahato, J; Bhattacharya, S; Sharma, D.K; **Chowdhury, A[*]**; ***Physical Chemistry Chemical Physics*** **(2021)**, 23, 10835–10840.

20. "Self-assembly of nicotinic acid-conjugated selenopeptides into stiff mesotubes", Gokula, R.P; Mahato, J; Singh, H.B[*]; **Chowdhury, A[*]**; ***ACS Applied Biomaterials*** **(2021)**, 4, 1912–1919.

21. "Cooperative supramolecular block copolymerization for the synthesis of functional axial organic heterostructures", Sarkar, A; Behera, T; Samal, R; Capelli, R; Empereur-mot, C; Mahato, J; Agasti, S.S[*]; Pavan, G.M[*]; **Chowdhury, A[*]**; George, S.J[*]; ***Journal of the American Chemical Society*** **(2020)**, 142, 11528-11539.

22. "α-Synuclein aggregation nucleates through liquid-liquid phase separation", Ray, S; Singh, N; Pandey, S; Kumar, R; Gadhe, L; Datta, D; Patel, K; Mahato, J; Navalkar, A; Panigrahi, R; Chatterjee, D; Maiti, S; Bhatia, S; Mehra, S; Singh, A; Gerez, J; **Chowdhury, A**; Kumar, A; Padinhateeri, R; Riek, R; Krishnamoorthy, G; Maji, S.K[*]; ***Nature Chemistry*** **(2020)**, 12, 705–716.

23. "Molecular intercalation and electronic two dimensionality in layered hybrid perovskites", Sheikh, T; Nawale, V; Pathoor, N; Phadnis, C; **Chowdhury, A**; Nag, A[*]; ***Angewandte Chemie, International Edition*** **(2020)**, 59, 2-9.

24. "Spatially correlated photoluminescence blinking and flickering of hybrid-halide perovskite micro-rods", Behera, T; Pathoor, N; Phadnis, C; Buragohain, S; **Chowdhury, A[*]**; ***Journal of Luminescence*** **(2020)**, 223, 117202-117211. [*special issue on perovskite luminescence*]

25. "Non-Gaussian subdiffusion of single-molecule tracers in a hydrated polymer network", Singh, R.K; Mahato, J; **Chowdhury, A**; Sain, A; Nandi, A[*]; ***The Journal of Chemical Physics*** **(2020)**, 152, 024903.

26. "Insights on heterogeneity in blinking mechanisms and non-ergodicity using sub-ensemble statistical analysis of single quantum-dots" Mukherjee, A; Ray, K.K; Phadnis, C; Layek, A; Bera, S; **Chowdhury, A***; ***The Journal of Chemical Physics*** **(2019),** 151, 084701.

27. "Critical role of processing on mechanical properties of cross-linked highly loaded nanocomposites", Suresh, K; **Chowdhury, A**; Kumar, S.K; Kumaraswamy, G*; ***Macromolecules*** **(2019)**, 52, 5955-5962.

28. "Reversible dimensionality tuning of hybrid perovskites with humidity: visualization and application to stable solar cells" Sharma, S.K; Phadnis, C; Das. T.K; Kumar, A; Kavaipatti, B; **Chowdhury, A**; Yella, A*; ***Chemistry of Materials*** **(2019)** 31, 3111-3117.

29. "Self-assembly of penta-selenopeptides into amyloid fibrils" Gokula, R.P; Mahato, J; Singh, H.B*; **Chowdhury, A***; ***Chemical Communications*** **(2018)**, 54, 11697-11700.

30. "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)**, 57, 11603–11607.

Conferences and Symposia (updated till 2017)

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 (updated till 2016)

- 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.