Curriculum Vitae

Dr. M. ANNADHASAN

DST INSPIRE Faculty (FT014)
Department of Chemical Sciences
IISER Kolkata, Mohanpur, West Bengal-741 246, India
E-mail: annadhasan@iiserkol.ac.in
Phone: +91-9550432511

RESEARCH INTEREST

- Organic/inorganic materials based photonic devices for optical/electronic applications.
- Development of flexible photonic devices based on organic/inorganic materials.
- Fabrication and device making by soft nanolithography of micro/nanomaterials through the nano-imprinting method.
- Micro/nanomanipulation of self-assembled materials.
- Self-assembly, sublimation, and anti-solvent diffused microcrystal preparation.
- Flexible organic crystals-based optical waveguides and optical circuits.

CURRENT POSITION

28-09-2022 ~ till date **DST INSPIRE Faculty** Department of Chemical Sciences, IISER Kolkata, West Bengal, India

RESEARCH EXPERIENCE

01/2021 ~ 08/2022 **Research Associate-II**, IoE Project
Mentor: **Prof. Dr. R. Chandrasekar,**
School of Chemistry, University of Hyderabad, India.

11/2018 ~ 12/2020 **Research Associate**, (**DST-RSF**)
Mentor: **Prof. Dr. R. Chandrasekar,**
School of Chemistry, University of Hyderabad, India.

11/2015 ~ 10/2018 **Dr. D. S. Kothari Post-Doctoral Fellow**,
Mentor: **Prof. Dr. R. Chandrasekar,**
School of Chemistry, University of Hyderabad, India.

EDUCATION

4/2010 ~ 1/2016 **Ph.D.** in Chemistry (Polymer Science),
Supervisor: **Dr. N. Rajendiran**, Department of Polymer Science,
University of Madras, India.

Thesis title: **Green Chemical Synthesis of Amino Acids and *N*-Cholyl Amino Acids Stabilized Noble Metal Nanoparticles/Nanoclusters and Their Chemical and Biological Applications**

08/2008 ~ 02/2010	**M.Phil.** in Chemistry (7.90 /10 OGPA),
07/2006 ~ 05/2008	**M. Sc.** in Chemistry (7.54 /10 OGPA), Annamalai University, India.
07/2002 ~ 05/2006	**B. Sc. Ed.** in Chemistry, Botany, Zoology, and Education (65.4 %), Regional Institute of Education (NCERT), University of Mysore, Mysore, Karnataka, India.

AWARDS / FELLOWSHIPS

- **Best RSC Oral presentation award** in "CHEMFEST-2020" in-house symposium, School of Chemistry, University of Hyderabad, during 27th and 28th February 2020.
- **Visiting Researcher** at Physics Department, Lomonosov Moscow State University, Russia from 31st May – 13th June 2019.
- **Best Oral presentation award** in ICAN-2018, University of Madras, Tamil Nadu, India.
- **Post-Doctoral Fellow** from 2015 to 2018 by University Grants Commission (UGC) under Dr. D. S. Kothari Post-Doctoral Fellow scheme, New Delhi, India.
- **Visiting Scholar** from Aug 2013 to Feb 2014 by University of Hyderabad under UGC-Networking Resource Centre (NRC) scheme, New Delhi, India.
- **Senior Research Fellow** from Apr 2013 to Oct 2013 by Department of Science and Technology, DST - FAST TRACK, New Delhi, India.
- **Research Fellow** from April 2010 to Jan 2013 by University Grants Commission (UGC) under the Major Research Project (MRP) scheme, New Delhi, India.

SKILLS

- Expertise in Laser confocal Raman microscopy for photonic studies, micro manipulation of organic/inorganic crystals, and microspheres.
- Strong knowledge and research experience in synthesis, characterization, and evaluation of nanomaterials especially metal nanoparticles (gold and silver).
- Strong background in *in-situ* fabrication and characterization of organic and inorganic micro/nanoparticles.
- Self-assembly of organic compounds and evaluating their optical properties down to micro/nanoscale level.
- Familiar with XPS, FT-IR, UV-vis, XRD, TG-DSC, SEM, TEM, AFM, and Confocal Raman spectroscopy (microstructure photonic property analysis using different lasers) techniques.

PUBLICATIONS

29. D. Barman, **M. Annadhasan**, R. Chandrasekar and P. Iyer, "*Hot-Excitons Harvesting via Through-Space Single-Molecule Based White-Light Emission and Optical Waveguides*" ***Chem. Sci.*** 13 (**2022**) 9004-9015. **(Impact Factor: 9.969)**
28. J. Ravi, A. Vinod Kumar, **M. Annadhasan**, R. Chandrasekar, "*Realization of Mechanically Maneuverable Circuit Ports in Organic Hybrid Photonic Chip for 360° Steering of Bandwidth Engineered Signals*" ***Adv. Opt. Mater.*** 10 (**2022**) 2102545. **(Impact Factor: 10.05)**

27. **M. Annadhasan**, V. Vinay Pradeep, A. Vinod Kumar, J. Ravi, R. Chandrasekar, "*Integrating Triply- and Singly-Bent Highly Flexible Crystal Optical Waveguides for Organic Photonic Circuit with a Long-Pass-Filter Effect*" ***Small Structures*** 3 (**2022**) 2100163. **(Impact Factor: 11.343)**

26. C. Tardío, V. Vinay Pradeep, R. Martín, A. M. Rodríguez, A. de la Hoz, R. Jada, **M. Annadhasan**, P. Prieto, R. Chandrasekar, "*Polarised Optical Emission from Organic Anisotropic Microoptical Waveguides Grown by Ambient Pressure Vapour-Deposition*" ***Chem - An Asian J***, 16 (**2021**) 3476-3480. **(Impact Factor: 4.568)**

25. J. Ravi, A. Vinod Kumar, D. Prasad Karothu, **M. Annadhasan**, P. Naumov, R. Chandrasekar, "*Geometrically-Reconfigurable, Two Dimensional, All-Organic Photonic Integrated Circuits Made from Two Mechanically and Optically Dissimilar Crystals*" ***Adv. Funct. Mater.*** (**2021**) 2105415. **(Impact Factor: 19.92)**

24. A. Vinod Kumar, M. Rohullah, J. Ravi, M. Godumala, **M. Annadhasan**, R. Chandrasekar, "*Mechanophotonic Aspects of a Room Temperature Phosphorescent Flexible Organic Microcrystal*" ***Crys. Engg. Comm.*** 23 (**2021**) 5774 - 5779. **(Impact Factor: 3.545)**

23. J. Ravi, **M. Annadhasan**, A. Vinod Kumar, R. Chandrasekar "*Mechanically Reconfigurable Organic Photonic Integrated Circuits Made from Two Electronically Different Flexible Microcrystals*" ***Adv. Funct. Mater.*** 31 (**2021**) 2100642. **(Impact Factor: 19.92)**

22. A. Vinod Kumar,‡ **M. Annadhasan**,‡ V. V. Pradeep, M. Jyothi, K. V. J. Jose, R. Chandrasekar, "*Spatio-Temporal Growth Anomalies in Photo-Isomerisable Cyanostilbene-Based Crystals Triggered by Light*" ***J. Phys. Chem. C*** 125 (**2021**) 4909-4916. (‡ Equal contribution) **(Impact Factor: 4.126)**

21. **M. Annadhasan**, A. Vinod Kumar, E. A. Mamonov, T. Murzina, R. Chandrasekar, "*Magnetic Field-Assisted Manipulation of Polymer Optical Microcavities*" ***Adv. Photonics Res.*** 2 (**2021**) 2000146. **(Impact Factor: xxx)**

20. V. V. Pradeep, C. Tardío, I. T. -Moya, A. M. Rodrígue, A. Vinod Kumar, **M. Annadhasan**, A. de la Hoz, P. Prieto, R. Chandrasekar, "*Mechanical Processing of Naturally Bent Organic Crystalline Microoptical Waveguides and Junctions*" ***Small*** 17 (**2021**) 2006795. **(Impact Factor: 13.28)**

19. **M. Annadhasan**, A. Vinod Kumar, D. Venkatakrishnarao, E. A. Mamonov, R. Chandrasekar, "*Mechanophotonics: Precise-Selection, assembly and disassembly of polymer optical microcavities via mechanical manipulation for spectral engineering*" ***Nanoscale Advances*** 2 (**2020**) 5584-5590. **(Impact Factor: 5.598)**

18. **M. Annadhasan**, S. Basak, N. Chandrasekhar, R. Chandrasekar, *"Next-Generation Organic Photonics: The Emergence of Flexible Crystal Optical Waveguides"* ***Adv. Opt. Mater.*** 8 (**2020**) 2000959. **(Impact Factor: 10.05)**

17. **M. Annadhasan**, A. Agrawal, S. Bhunia, V. V. Pradeep, S. S. Zade, C. M. Reddy, R. Chandrasekar, *"Mechanophotonics: Flexible Single-Crystal Organic Waveguides and Circuits"*, ***Angew. Chem. Int. Ed.*** 59 (**2020**) 13852-13858. **Top 10% article (Impact Factor: 16.82)**

16. **M. Annadhasan**, D. P. Karothu, R. Chinnasamy, L. Catalano, E. Ahmed, S. Ghosh, P. Naumov, R. Chandrasekar, *"Micromanipulation of Mechanically Compliant Organic Single-Crystal Optical Microwaveguides"* ***Angew. Chem. Int. Ed.*** 59 (**2020**) 13821-13830. **(Impact Factor: 16.82)**

15. V. Radhika, **M. Annadhasan**, J. Ravi, M. D. Durga Prasad, N. Mitetelo, K. Zhdanova, E. Mamonov, K. Muellen, T. V. Murzina, R. Chandrasekar, *"Multifunctional Chiral pi -Conjugated Polymer Microspheres: Production and Confinement of NLO signal, Detection of Circularly Polarized Light and Display of Laser-Triggered NLO Emission Shifts"* ***Adv. Opt. Mater.*** 8 (**2020**) 2000431. **(Impact Factor: 10.05)**

14. R. Samanta, D. Kitagawa, A. Modal, M. Bhattacharya, **M. Annadhasan**, S. Modal, R. Chandrasekar, S. Kobatake, C. M. Reddy *"Mechanical actuation and Patterning of Rewritable Crystalline Monomer-polymer Heterostructures via Topochemical Polymerization in a Dual Responsive Photochromic Organic Material"* ***ACS Appl. Mater. & Interfaces*** 12 (**2020**) 16856-16863. **(Impact Factor: 9.229)**

13. M. Jyothi, **M. Annadhasan**, V. V. Pradeep, R. Chandrasekar, *"Direct micro-scale monitoring of aggregation, its growth and diffusion via aggregation-induced emission.* ***Soft Matter*** 16 (**2020**) 2664-2668. **(Impact Factor: 3.679)**

12. V. V. Pradeep, N. Mitetelo, **M. Annadhasan**, M. Popov, E. Mamonov, T. V. Murzina, R. Chandrasekar, *"Ambient Pressure Sublimation Technique Provides Polymorph-Selective Perylene Non-Linear Optical Micro-Cavities"* ***Adv. Opt. Mater.*** 8 (**2020**) 1901317. **(Impact Factor: 10.05)**

11. V. V. Pradeep, **M. Annadhasan,** R. Chandrasekar, *"Vapour-Phase Epitaxial Growth of Dual-Colour-Emitting DCM/Perylene Micro-Heterostructure Optical Waveguides"* ***Chem. Asian. J.*** 14 (**2019**) 4577–4581. **(Impact Factor: 4.568)**

10. **M Annadhasan,** J Kasthuri, N Rajendiran, *"A Facile Sunlight-Induced Synthesis of Phenylalanine-Conjugated Cholic Acid-Stabilized Silver and Gold Nanoparticles for Colorimetric Detection of Toxic* Hg^{2+}, Cr^{6+} *and* Pb^{2+} *Ions",* ***Chem. Select*** 4 (**2019)** 6557-6567. **(Impact Factor: 2.307)**

9. **M. Annadhasan**, U. Venkataramudu, N. V. Mitetelo, E. A. Mamonov, C. Sahoo, S. R. Gopal Naraharisetty, T. V. Murzina, R. Chandrasekar, *"High Optical Energy Storage and Two-Photon Luminescence from Solution-Processed Perovskite- Polystyrene Composite Microresonators",* ***ACS Appl. Energy Mater.*** 2 (**2019**) 428-435. **(Impact Factor: 6.024)**

8. D. Venkatakrishnarao, C. Sahoo, V. Radhika, **M. Annadhasan**, S. R. G. Naraharisetty and R. Chandrasekar, *"2D Arrangement of Polymer Micro-Sphere Photonic Cavities Doped with Novel N-Rich Carbon Quantum Dots Display Enhanced One- and Two-Photon Luminescence Driven by Optical Resonances",* ***Adv. Opt. Mater.,*** 5 (**2017**) 1700695 **(Impact Factor: 10.05)**

7. U. Venkataramudu, **M. Annadhasan,** H. Maddali, and R. Chandrasekar, *"Polymorphism and Microcrystal Shape-Dependent Luminescence, Optical Waveguiding and Resonator Properties of Coumarin–153",* ***J. Mater. Chem. C,*** 5 **(2017)** 7262-7269. **(Impact Factor: 7.393)**

6. **M. Annadhasan,** and N. Rajendiran, *"Highly selective and sensitive colorimetric detection of Hg (II) ions using green synthesized silver nanoparticles",* ***RSC Adv.,*** 5 (**2015**) 94513-94518. **(Impact Factor: 4.036)**

5. **M. Annadhasan**, J. Kasthuri and N. Rajendiran. *"Green synthesis of gold nanoparticles under sunlight irradiation and its colorimetric detection of* Ni^{2+} *and* Co^{2+} *ions",* ***RSC Adv.,*** 5 **(2015)** 11458–11468. **(Impact Factor: 4.036)**

4. **M. Annadhasan**, T. Muthukumarasamyvel, V. R. Sankar Babu and N. Rajendiran, *"Green synthesized silver and gold nanoparticles for colorimetric detection of* Hg^{2+}, Pb^{2+}, *and* Mn^{2+} *in aqueous medium",* ***ACS Sustainable Chem. Eng.*** 2 (**2014**) 887−896. **(Impact Factor: 8.198)**

3. **M. Annadhasan**, V.R. Sankar Babu, R. Naresh, K. Umamaheswari and N. Rajendiran. *"A sunlight-induced rapid synthesis of silver nanoparticles using sodium salt of N-Cholyl amino acids and its antimicrobial applications".* ***Coll. Surf. B*** 96 (**2012**) 14–21. **(Impact Factor: 5.268).**

2. **M. Annadhasan**, K. Selvam, and M. Swaminathan. *"A combined-redox synthesis of 2-alkylbenzimidazoles from 2-nitroanilines by semiconductor photocatalysis".* ***Syn. Comm.,*** 42 (**2012**) 1500–1508**. (Impact Factor: 2.007)**

1. K. Selvam, **M. Annadhasan**, R. Velmurugan, and M. Swaminathan, *"*$AgTiO_2$*/ clay composite photocatalyst for the oxidation cyclization of 1,2-diamine compounds with propylene glycol or alcohols".* ***Bull. Chem. Soc. Jpn.*** 83 (**2010**) 831–837. **(Impact Factor: 5.488)**

CONFERENCES AND WORKSHOPS

12. Presented work in **"2nd International Conference on Crystal Engineering: From Molecules to Crystal -2020 (CEFMC-2020)"** a virtual meeting during 19-20 June 2020.

11. **Best oral presentation award** in **"CHEMFEST-2020"** in-house symposium, School of Chemistry, University of Hyderabad, during 27th and 28th February 2020.

10. **Best oral presentation award** in **"International Conference on Advances in New Materials (ICAN-2018)"**, Department of Inorganic Chemistry, University of Madras, during 8th and 9th June 2018.

9. **OSI - International Symposium on Optics (OSI-ISO 2018),** organized by Department of Physics, Indian Institute of Technology Kanpur, Kanpur -208 016, during 19 - 22 September 2018.
8. Participated in **"Frontiers in Nanoscience and Technology (FINST)"**, organized by the Centre for Nanotechnology, University of Hyderabad, during 6-7 April 2018.
7. Presented work in **"8th East Asia Symposium on Functional Dyes and Advanced Materials (EAS8)"** Organised by CSIR-National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram, during 20 – 22 September 2017.
6. Presented work in **"15th CRSI National Symposium in Chemistry"** organized by Department of Chemistry, Banaras Hindu University, during 01–03 February 2013.
5. Participated in **"Young Scientists training workshop on Fundamentals and Advances in Biomaterials Science (BIOMAT 12)"** organized by Materials Research Center, Indian Institute of Science, Bangalore, during 7–9 December 2012.
4. Participated in **"Advanced Nanomaterials (ANM-2012)"** organized by the Centre for Nanoscience and Nanotechnology, Periyar University, on 6th and 7th February 2012.
3. Presented work in **"National Conference on Nanoscience and Nanotechnology (NCNN-2011)"** organized by National Centre for Nanoscience and Nanotechnology, University of Madras, during 25–27 August 2011.
2. Presented work in **"National Workshop on Preparation and Characterization of Nanomaterials"** (**NWPCN-2011**) organized by National Centre for Nanoscience and Nanotechnology, University of Madras, during 14–16 March 2011.
1. Presented work in **"13th CRSI National Symposium in Chemistry"** organized by the National Institute of Science Education and Research (NISER) and KIIT University, during 04–06 February 2011.