MANISHA DEVI
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PROFESSIONAL EXPERIENCE

RESEARCH

06/2020–06/2022 **Institute Postdoctoral Fellow** (PI: Dr. Santanu Kumar Pal)
Department of Chemical Sciences, ***IISER Mohali, Punjab***

10/2019–06/2020 **Research Associate** (PI: Dr. Santanu Kumar Pal)
Department of Chemical Sciences, ***IISER Mohali, Punjab***

10/2017–10/2019 **National Postdoctoral Fellow** (PI: Dr. Santanu Kumar Pal)
Department of Chemical Sciences, ***IISER Mohali, Punjab***

TEACHING

09/2022–Till Date **Assistant Professor**
Department of Chemistry, ***Gautam College Hamirpur, H.P.***

EDUCATION

08/2011–03/2017 **Ph.D. /Chemistry, Indian Institute of Technology Mandi, Himachal Pradesh, India**
Course Work: 9.25 CGPA
Thesis: "Development of New Fluorescent Chemosensors for Various Analytes and Their Evaluation as Molecular Logic Gates"
PI: Dr. Pradeep Parameswaran (Professor, IIT Mandi, H.P.)

10/2009–10/2010 **M.Phil. /Chemistry, Himachal Pradesh University Shimla, India**
1st Class (77.66%)
Thesis: "Design of Alginate and Aloe Vera based Gastroretentive Floating Drug Delivery"
PI: Dr. Baljit Singh (Professor, Head of the Department, HPU Shimla)

07/2007–06/2009 **M.Sc. / Organic Chemistry, Himachal Pradesh University Shimla, India**
1st Class (76.75%)

04/2006–03/2007 **B.Ed. / Education (Physical Science), Himachal Pradesh University Shimla, India**
1st Class (73.45%)

04/2003–03/2006 **B.Sc., M.L.S.M. College Sundernagar, Himachal Pradesh, India**
Subjects: Chemistry, Botany, Zoology, English, Hindi
1st Class (74.80%)

04/2002–03/2003 **12th, M.L.S.M. College Sundernagar, Himachal Pradesh, India**
Subjects: English, Biology, Physics, Chemistry, Mathematics
1st Class (60.00%)

04/2000–03/2001 **10th, Govt. Sr. Sec. School Jarol, Himachal Pradesh, India**
Subjects: English, Mathematics, Hindi, Social Science, Science, Sanskrit, Art
1st Class (73.42%)

RESEARCH INTERESTS

Broader area: **Supramolecular and analytical chemistry** which focuses on

Material synthesis (fluorescent molecules, liquid crystalline materials, covalent organic frameworks, and nanomaterials) for multifunctional applications such as molecular recognition, self-assembly, bioimaging, photocatalysis, and dye degradation.

Liquid crystal interfaces to develop new principles which offer the basis of general and facile approaches for the building of new sensing platforms that can report the detection and organization of biological species at these interfaces. Further, fabrication of these proposed biosensors for real-world applications. Designing of liquid crystal droplets for sensing and drug delivery applications for healthcare.

GRANTS

2017-19 **National Postdoctoral Fellowship** (SERB-DST, India), 19.73 Lakh.
Project: "Design of small fluorescent molecules for metal ions sensing and their potential application as optical imaging agent and for detection of water pollutants."

2016 **International Travel Grant from DST India** for MSMLG-2016 International Conference, 71,207/-.

2016 **Partial Financial Assistance from IIT Mandi** to attend MSMLG-2016 International Conference (1 Lakh)

AWARDS, DISTINCTIONS & HONOURS

2023 **Innovative Academic Researcher Award** by Edwin Incorporation

2023 **Editorial Board Member** of Edwin group of Journals

2021 **Associate Editorial Board Member**- CURRENT INDIAN SCIENCE - Field: Material science

2021 **Reviewer for Journals/Books**

2016 **Springer Nature Publishing prize** for best poster presentation in international conference MSMLG-2016 organized at University of Bath, UK

2011 **Doctoral Research Fellowship**, Minister of Human Resource Development (MHRD) through GATE

2011-15 **Residential Warden of Girl's Hostels**, IIT Mandi, India (During Ph.D.)

2001 **Meritorious scholarship** in matriculation by HP Govt., India in 2001

Publications

Citations: >465, *h*-index: 12 (Google Scholar); ‡ (***joint first author***) and † (***joint second author***)

24. I. Pani, S. Sil, R. Kaur, M. Devi, S. K. Pal*, Dynamic microparticle assembly at the interface of chemoresponsive liquid crystal droplets, ***Analytical Chemistry***, **2023**, **Under Progress.**
23. M. Devi, S. Sil, I. Pani, T. Gupta S. K. Pal*, Design of Liquid Crystal Aqueous Interface for Detection of Calcium Ion Using Protein as Recognition Probe, ***Liquid Crystals*, 2023, Accepted.**
22. Y. Nailwal, M. Devi, S. K. Pal*, Luminescent Conjugated Microporous Polymers for Selective Sensing and Ultrafast Detection of Picric Acid, ***ACS Applied Polymer Materials***, **2022**, *4*, 2648–2655.
21. M. Devi, K. A, I. Pani, S. Sil, S. K. Pal*, Label-Free Detection of Ochratoxin A Using Aptamer as Recognition Probe at Liquid Crystal-Aqueous Interface, ***Frontiers in Soft Matter***, **2022**, 2, 835057.
20. M. Devi, I. Pani, S. K. Pal*, Liquid Crystals as Signal Transducers for Sensing of Analytes Using Aptamer as Recognition Probe, ***Liquid Crystals Reviews***, **2021**, *9*, 65–84.
19. M. Devi,‡ I. Verma,‡ S. K. Pal*, Distinct interfacial ordering of liquid crystal observed by protein-lipid interactions that enabled the label-free sensing of cytoplasmic protein at LC-aqueous interface, ***Analyst***;

2021, *146*, 7152–7159.

18. R. Nandi,[‡] V. Jain,[‡] M. Devi,[†] T. Gupta,[†] S. K. Pal*, Hydrogen bond assisted anchoring transitions in nematic liquid crystals at the aqueous interface, ***Colloids and Surfaces A: Physicochemical and Engineering Aspects***, **2021**, *625*, 126952.
17. J. De, M. Devi, A. Shah, S. P. Gupta, I. Bala, D. P. Singh, R. Douali, S. K. Pal*, Luminescent Conductive Columnar π-Gelators for Fe(II) Sensing and Bio-Imaging Applications, ***Journal of Physical Chemistry B***, **2020**, 1*24*, 10257–10265.
16. M. Devi, A. Dhir, C. P. Pradeep*, Facile synthesis of large wrinkled gold nanoparticles using anthracene-terminated tripodal amine ligand and their catalytic efficiency, ***European Journal of Inorganic Chemistry***, **2020**, *2020*, 4516–4522; **Featured on Front-Cover**, vol. 2020, issue 48 (November 11, 2020)
15. I. Bala, R. A. K. Yadav[†], M. Devi[†], J. De, N. Singh, K. Kailasam, J. Jayakumar, J.-H. Jou, C.-H. Cheng, S. K. Pal*, High-performing D–π–A–π–D benzothiadiazole-based hybrid local and charge-transfer emitters in solution-processed OLEDs, ***Journal of Material Chemistry C***, **2020**, *8*, 17009–17015.
14. S. Sehlangia, M. Devi, N. Nayak, N. Garg, A. Dhir, C. P. Pradeep*, Synthesis, crystal structure and substituent controlled photoluminescence and chemosensing properties of a series of 2,2'-(arylenedivinylene)bis-8-hydroxyquinolines, ***ChemistrySelect***, **2020**, *5*, 5429–5436.
13. H. Singh, M. Devi, N. Jena, M. M. Iqbal, Y. Nailwal, A. D. Sarkar, S. K. Pal*, Proton triggered fluorescence switching in self-exfoliated ionic covalent organic nanosheets for applications in selective detection of anions, ***ACS Applied Materials & Interfaces***, **2020**, *12*, 13248–13255.
12. I. Verma,[‡] M. Devi,[‡] D. Sharma, R. Nandi, S. K. Pal*, Liquid crystal based detection of Pb(II) ions using spinach RNA as recognition probe, ***Langmuir***, **2019**, *35*, 7816– 7823.
11. A. K. Gupta, A. Kumar, R. Singh, M. Devi, A. Dhir, C. P. Pradeep*, Facile synthesis of an organic solid state NIR-emitter with large stokes shift via excited state intramolecular proton transfer, ***ACS Omega***, **2018**, *3*, 14341–14348.
10. A. Kumar, A. K. Gupta, M. Devi, K. E. Gonsalves, C. P. Pradeep*, Engineering multifunctionality in hybrid polyoxometalates: Aromatic sulfonium octamolybdates as excellent photochromic materials and self-separating catalysts for epoxidation, ***Inorganic Chemistry***, **2017**, 56, 10325–10336.
9. M. Devi, A. Dhir, C. P. Pradeep*, Modulating sensitivity and detection mechanism with spacer length: a new series of fluorescent turn on chemodosimeters for Pb^{2+} based on rhodamine-quinoline conjugates, ***RSC Advances***, **2016**, *6*, 112728–112736.
8. M. Devi, A. Dhir, C. P. Pradeep*, A sandwich-type zinc complex from a rhodamine dye based ligand: a potential fluorescent chemosensor for acetate in human blood plasma and a molecular logic gate with INHIBIT function, ***New Journal of Chemistry***, **2016**, *40*, 1269–1277.
7. A. Kumar, M. Devi, N. Mamidi, K. E. Gonsalves, C. P. Pradeep*, Aromatic sulfonium polyoxomolybdates: A new class of solid state photochromic materials with tunable properties, *Chemistry—A European Journal*, **2015**, *21*, 18557–18562.
6. M. Devi, A. Dhir, C. P. Pradeep*, A tris(hydroxymethyl)aminomethane-rhodamine spirolactam derivative as dual channel pH and water sensor and its application to bio imaging, ***European Journal of Organic Chemistry***, **2015**, *2015*, 4650–4657.
5. S. R. Patil, J. P. Nandre, P. A. Patil, S. K. Sahoo, M. Devi, C. P Pradeep, Y. Fabiao, L. Chen, C. Redshaw, U. D. Patil*, A uracil nitroso amine based colorimetric sensor for the detection of Cu^{2+} ions from aqueous environment and its practical applications, *RSC Advances*, **2015**, *5*, 21464–21470.
4. M. Devi, A. Dhir, Pooja, C. P. Pradeep*, New triangular steroid-based $A(LS)_3$ type gelators for selective fluoride sensing applications, *RSC Advances*, **2014**, *4*, 27098–27105.
3. S. R. Patil, J. P. Nandre, D. Jadhav, S. Bothra, S. K. Sahoo, M. Devi, C. P. Pradeep, P. P. Mahulikar, U.

D. Patil*, Imatinib intermediates as a two-in-one dual channel sensor for the recognition of Cu^{2+} and I- ions in aqueous media and its practical applications, *Dalton Transactions*, **2014**, *43*, 13299–13306.

2. M. Devi, A. Dhir, C. P. Pradeep*, Au micro particles mediated construction of logic based dual channel molecular keypad lock, *Dalton Transactions*, **2013**, *42*, 7514–7518.

1. B. Singh*, V. Sharma, A. Dhiman, M. Devi, Design of aloe vera-alginate gastroretentive drug delivery system to improve the pharmacotherapy, *Ploymer-Plastics Technology and Engineering*, **2012**, *51*, 1303–1314.

BOOK CHAPTERS

- M. Devi*, "Application of 2D Nanomaterials as Fluorescent Biosensors", *In Adapting 2D Nanomaterials for Advanced Applications*; **ACS Symposium Ser**ies, **2020**, Chapter 6, 1353, 117–141.
- M. Devi*, Shipra Jaswal, Swadesh Kumar, "MXene: Chemistry, properties, and energy storage Applications", in *Multidimensional Nanomaterials for Supercapacitors: Next Generation Energy Storage*; **Bentham Science Publishers**, **2023**, Chapter 6, **Under Revision.**

FRONT COVER

- **Front Cover:** Facile Synthesis of Large Wrinkled Gold Nanoparticles Using Anthracene-Terminated Tripodal Amine Ligand and their Catalytic Efficiency (**Eur. J. Inorg. Chem.** 48/2020)

CONFERENCES

Poster or Oral Presentations

2022 **International Symposium on Recent Advances in Self-assembled Materials and Supramolecular Chemistry (issamsupra 2022)**; Online; "Label-Free Detection of Ochratoxin A Using Aptamer as recognition Probe at Liquid Crystal-Aqueous Interfaces" (*Poster* & *flash poster presentation*)

2019 **26th National Conference on Liquid crystal (NCLC-2019)**; Chitkara University Chandigarh, India; "Design of Label Free Liquid Crystal Biosensor for Imaging the Protein" (*Poster presentation*)

2018 **Frontiers in Chemical Sciences 2018 (FICS-2018)**; IIT Guwahati, India; "Label Free Liquid Crystal Biosensor for the Detection of Pb^{2+} ions" (*Poster presentation)*

2016 **5th Molecular Sensors and Molecular Logic Gates Symposium (MSMLG-2016)**; University of Bath, UK; "A sandwich-type zinc complex from rhodamine dye based ligand: a potential fluorescent chemosensor for acetate in human blood plasma and a molecular logic gate with INHIBIT function" (*Poster presentation*)

2016 **3rd Research Fair**; IIT Mandi, India; "A Tris(hydroxymethyl)aminomethane-rhodamine Spirolactam Derivative as Dual Channel pH and Water Sensor and its Application to Bio Imaging" (*Poster presentation*)

2015 **International Symposium on Modern Trend in Inorganic Chemistry (MTIC XVI-2015)**; Jadavpur University Kolkata, India; "Homoleptic Sandwich-type Zinc complex from Rhodamine dye based ligand: its application in detection of acetate anion in human blood plasma and construction of INHIBIT type molecular logic gate" (*Poster Presentation*)

2015 1st **AMRC symposium**; IIT Mandi, India; "Design and characterization of fluorescent molecules for chemical sensing and their applications" (*Oral Presentation*)

2014 **National Symposium on Advanced materials (NSAM-2014)**; IIT Mandi, India; "Au microparticles mediated construction of a logic based dual channel molecular keypad lock " (*Poster presentation*)

2014 **2nd Research Fair Anusandhan**; IIT Mandi, India; "New triangular steroid-based A(LS) 3 type gelators for selective fluoride sensing application" (*Poster presentation*)

2013 **International Symposium on Modern Trend in Inorganic Chemistry (MTIC XV-2013)**; IIT Roorkee, India; " Au microparticles mediated construction of a logic based dual channel molecular keypad lock" (*Poster Presentation*)

2013 **1st Research Fair**; IIT Mandi, India; "Au microparticles mediated construction of a logic based dual channel molecular keypad lock" (*Oral Presentation*)

2012 **1st National Symposium on Nano biotechnology (NSNB-2012)**; IIT Mandi, India; "Development of Polyoxometalates-Organic hybrids for Materials and Catalytic Applications" (*Poster Presentation*)

Conferences/Workshops Attended

2022 **Advances in Multifunctional Nanomaterials**; IIT Mandi, India *(online)*

2021 **28th National Conference on Liquid Crystals (NCLC-XIV)**; Assam University, India (*Online*)

2021 **International Conference on Main Group Molecules to materials (MMM-II)**; NISER Bhubaneswar, India (*Online*)

2021 **ChemSci2021: Leaders In The Field Symposium**

2021 **Recent perspectives on liquid crystalline materials: chemistry, physics, and biological applications**; Assam University, India (*Online*)

2021 **Emerging Trends in Chemical and Applied Sciences for Sustainable Future** Hansraj College, University of Delhi in association with IQAC, India (*Online*)

2021 **Five-Day International Online Faculty Development Programme on "Emerging Trends in Nano Technology (ETNT-2021)"**; VIT Bhimavaram Andhra Pradesh in association with PRL Ahmedabad, India (*Online*)

2020 **Science Connect: Langmuir presented by ACS Science Talks** (*Online*)

2020 **ACS on Campus India Virtual Event** (*Online*)

2020 **Webinar on Frontiers in Chemical Sciences**; NIT Rourkela, India (*Online*)

2019 **Science of Synthesis Workshop (Thieme)**; IISER Mohali, India

2019 **Workshop on Academic Publishing for Quality Research: How to get Published &Avoid Pitfalls (Wiley)**; IISER Mohali, India.

2018 **ACS on Campus**; IISER Mohali, India

2017 **RSC roadshow**; IISER Mohali, India

2017 **24th National Conference on Liquid Crystals (NCLC-XIV)**; IISER Mohali, India

2016 **Indo-UK Workshop on Advanced Nanomaterials for Energy, Health and Sustainability**; IIT Mandi, India

2013 **2nd National Symposium on Nano biotechnology (NSNB-2013)**; IIT Mandi, India

PROFESSIONAL MEMBERSHIPS

2022 Indian Liquid Crystal Society (**Life Member**)

2022 Chemical Research Society of India (**Life Member**)

2022-2023 **Affiliate member** of the Royal Society of Chemistry.

PROJECTS GUIDED

2013 **Summer Intern**; "Synthesis of fluorescent molecules for sensing applications"; IIT Mandi, India

(*During Ph.D.*)

2012 **Summer Intern**; "Synthesis of polyoxometalates"; IIT Mandi, India (*During Ph.D.*)

2014 **MSc Project**; "Design and synthesis of fluorescent molecules: their sensing application and gelation studies" IIT Mandi, India (*During Ph.D.*)

2018 **MS Project**; "Label-free detection of Pb^{2+} at liquid crystal interface" IISER Mohali; India (*During Postdoc*)

2021 **MS Project**; "Label-free detection of ochratoxin A at liquid crystal interface using aptamer recognition probe" IISER Mohali; India (*During Postdoc*)

ADMINISTRATIVE EXPERIENCE

12/2011–08/2013	**Residential Warden,** Renuka Hall Girl's Hostel Indian Institute of Technology Mandi, Himachal Pradesh, India
09/2013–09/2015	**Residential Warden,** Chandra Taal Girl's Hostel, Indian Institute of Technology Mandi, Himachal Pradesh, India
09/2013–09/2015	Member of hygiene & sanitation Committee Indian Institute of Technology Mandi, Himachal Pradesh, India
2023–till date	Member of Research Cell Development Committee Gautam College Hamirpur, Himachal Pradesh, India
2023–till date	Member of Computer Committee Gautam College Hamirpur, Himachal Pradesh, India

REFERENCES

Dr. Pradeep C Parameswaran (Ph.D. Supervisor)
Professor, School of Basic Sciences
IIT Mandi
Kamand, Mandi-175005,
Himachal Pradesh, India
Phone-: +91-1905-267045; 8894960670
Email: pradeep@iitmandi.ac.in

Dr. Baljit Singh (M. Phil. Supervisor)
Professor, Department of Chemistry
Himachal Pradesh University
Summer Hill, Shimla-171005
Phone-: +91-0177-2833793
Email: baljitsinghhpu@yahoo.com

Dr. Santanu Kumar Pal (Post-Doctoral Supervisor)
Professor, Department of Chemical Sciences
IISER Mohali,
Sector 81, Mohali-140306, Punjab, India
Ph: +91-172-2293187; 9501047835
Email: skpal@iisermohali.ac.in ; santanupal.20@gmail.com

Dr. Venkata Krishnan
Associate Professor
School of Basic Sciences, IIT Mandi
Kamand, Mandi-175005
Himachal Pradesh, India
Phone-: +91-1905-267065; 9418425432
Email: vkn@iitmandi.ac.in

EXTERNAL PROFESSIONAL LINKS

Google Scholar
ORCHID
Publons
Research Gate
SCOPUS