

# Ravi Prakash Nath Tripathi

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## EDUCATION

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- **Indian Institute of Science, Education and Research, Pune** Maharashtra, India  
*Ph.D.* Aug. 2012 - May 2017
- **Indian Institute of Technology (IIT), Delhi** New Delhi, India  
*M.Sc.* August 2008 - June 2010
- **M.J.P. Rohilkhand University, Bareilly** Uttar Pradesh, India  
*B.Sc.* July 2005 - June 2008

## EXPERIMENTAL SKILLS

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- **Nanomaterials:** Semiconductors, Photonic and Molecular Nanowires, 2D nanomaterials, Phase Change Materials, Hybrid Perovskites
- **Optical Microscopy Techniques:** Bright and Dark Field microscopy, Single and Dual channel k-space Microscopy
- **Optical Spectroscopy Techniques:** Raman Spectroscopy, Fluorescence Spectroscopy, Energy Momentum Spectroscopy, Pump Probe Spectroscopy
- **Clean Room Fabrication Techniques:** Photo-lithography, Scanning Electron Microscopy, Electron Beam lithography
- **Languages:** MATLAB, LATEX
- **Tools:** Origin, MS Office, Adobe Photoshop
- **Platforms:** Web, Windows

## EXPERIENCE

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- **Panjab University, Chandigarh** Chandigarh, India  
*Assistant Professor* September 2024 - till date
- **Jai Prakash University, Chapra** Bihar, India  
*Assistant Professor* Feb. 2022 - August 2024
- **Missouri University of Science & Technology, Rolla** Missouri, USA  
*Postdoctoral Fellow* Sept. 2020 - Feb.2022
  - **Topic::** Anisotropic Linear and Nonlinear Signal Generation in Naturally Occurred 2D materials
- **The University of Alabama at Birmingham** Birmingham, USA  
*Postdoctoral Fellow* March 2019 - August 2020
  - **Topic::** Charge carrier dynamics in Hybrid Perovskites microstructures and Phase change metamaterials
- **Jai Prakash University, Chapra** Bihar, India  
*Assistant Professor* August 2017 - Feb. 2019

## PROJECTS

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- **Postdoctoral Research Project:** Anisotropic Linear and Nonlinear Signal Generation in Naturally Occurred Van der Waals (vdWs) materials
- **Postdoctoral Research Project:** Ultrafast Charge Carrier Dynamics in Hybrid Perovskites microstructures and Phase Change metamaterials
- **Ph.D. Research Project:** Nanophotonics of Organic Molecular Waveguides: Towards Active Optical Antenna
- **M.Sc. Research Project:** ZnO Nanostructures and Field Emission effect

## RESEARCH AND TRAVEL GRANTS

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- **DST-SERB Teachers Associateship For Research Excellence (TARE)** as PI  
*Topic: Study of excitons and cavity photons in cavity confined 2D materials*

## PUBLICATIONS

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### • Anisotropic Linear and Nonlinear Signal Generation in Naturally Occurred 2D materials:

- Anisotropic third-harmonic generation of exfoliated As<sub>2</sub>S<sub>3</sub> thin flakes, **Ravi P. N. Tripathi**, Xiaodong Yang, and Jie Gao, **Opt. Express**, **30 (13)**, 22661, 2022
- Natural layered mercury antimony sulfosalt livingstonite with anisotropic optical properties, **Ravi P. N. Tripathi**, Jie Gao and Xiaodong Yang, **Opt. Express**, **30 (11)**, 19611, 2022
- Polarization sensitive optical responses from natural layered hydrated sodium sulfosalt gerstleyite, **Ravi P. N. Tripathi**, Xiaodong Yang and Jie Gao, **Sci. Rep.** **12 (1)**, 4242, 2021
- Anisotropic optical responses of layered thallium arsenic sulfosalt gillulyite, **Ravi P. N. Tripathi**, Jie Gao and Xiaodong Yang, **Sci. Rep.** **11 (1)**, 22002, 2021
- Polarization dependent optical responses in natural 2D layered mineral teallite, **Ravi P. N. Tripathi**, Xiaodong Yang and Jie Gao, **Sci. Rep.** **11(1)**, 21895, 2021
- Van der Waals Layered Mineral Getchellite with Anisotropic Linear and Nonlinear Optical Responses, **Ravi P. N. Tripathi**, Xiaodong Yang and Jie Gao, **Laser Photonics Rev.** **15(10)**, 2100182, 2021
- Naturally occurring layered mineral franckeite with anisotropic Raman scattering and third-harmonic generation responses, **Ravi P. N. Tripathi**, Jie Gao and Xiaodong Yang, **Sci. Rep.** **11(1)**, 8510, 2021

### • Hybrid Inorganic-Organic Perovskites thin film and Phase Change Metamaterials:

- Revealing ultrafast carrier dynamics of hybrid perovskites at various stages of nucleation and growth kinetics, Bibek Dharmi†, **Ravi P. N. Tripathi**†, David J Daniels, and Kannatassen Appavoo, **Adv. Opt. Mat.**, 2201832, 2023, † **Equal Contribution**
- Angle-resolved polarimetry of hybrid perovskite emission for photonic technologies, Bibek S. Dharmi, Vasudevan Iyer, Aniket Pant, **Ravi P. N. Tripathi**, Benjamin J. Lawrie and Kannatassen Appavoo, **Nanoscale**, **14 (17)**, 17519-17527, 2022
- Fourier imaging microscopy of light-emitting hybrid perovskite nanostructures, **Ravi P. N. Tripathi**, Bibek S. Dharmi, Kannatassen Appavoo, **SPIE(Defense and Commercial Sensing): Conference Series 2020**, 11387

### • Molecular Structures: Active & Passive Waveguiding effect and directional Emission:

- $\pi$  - Extended Bodipy Self-Assembly as Supramolecular Photonic Security Ink and Optical Waveguide, Sandeep Cherumukil, Gourab Das, **Ravi P. N. Tripathi**, G.V. Pavan Kumar and Ayyappanpillai Ajayaghosh, **Adv. Funct. Mater.** **31(45)**, 2109041, 2021
- Directional secondharmonic generation controlled by sub-wavelength facets of an organic mesowire, Deepak K Sharma, Shailendra K Chaubey, Adarsh B Vasista, Jesil Jose Karumancheril, **Ravi P. N. Tripathi**, Alexandre Bouhelier and G.V. Pavan Kumar, **Applied optics**, **57(21)**, 5914-5922, 2018
- Doughnut-shaped emission from vertical organic nanowire coupled to thin plasmonic film, Adarsh B. Vasista, **Ravi P. N. Tripathi**, Shailendra K. Chaubey, Sunny Tiwari, and G.V. Pavan Kumar, **Optics letters**, **43(4)**, 923-926, 2018
- Radiative Channeling of Nanowire Frenkel Exciton Polaritons through Surface Plasmons, **Ravi P. N. Tripathi**, Adarsh B. Vasista, Rohit Chikkaraddy and G.V. Pavan Kumar, **Adv. Opt. Mat.** **5(4)**, 1600873, 2017
- Exciton Emission Intensity Modulation of Monolayer MoS<sub>2</sub> via Au Plasmon Coupling, B. Mukherjee, N. Kaushik, **Ravi P. N. Tripathi**, A.M. Joseph, P.K. Mohapatra, S. Dhar, B.P. Singh, G.V. Pavan Kumar, E Simsek and S Lodha, **Sci. Rep.**, **4** 41175, 2017
- Optics of an individual organic molecular mesowire waveguide: Directional light emission and anomalous refractive index, **Ravi P. N. Tripathi**, A. Dasgupta, Rohit Chikkaraddy, Partha Pratim Patra, Adarsh B. Vasista and G.V. Pavan Kumar, **Journal of Optics (IOP)**, **18(6)**, 065002, 2016 (**Paper of the week**)
- Directional exciton-polariton photoluminescence emission from terminals of a microsphere-coupled organic waveguide, **Ravi P. N. Tripathi**, Rohit Chikkaraddy, Arindam Dasgupta, and G.V. Pavan Kumar, **App. Phys. Lett.** **108(3)**, 031102, 2016
- Plasmoncontrolled excitonic emission from vertically-tapered organic nanowires, Rohit Chikkaraddy, Partha Pratim Patra, **Ravi P. N. Tripathi**, Arindam Dasgupta and G.V.Pavan Kumar, **Nanoscale**, **8 (31)** 14803-14808, 2016

### • Optical Trapping and Dynamic Lithography:

- V-shaped active plasmonic meta-polymers, Debrina Jana, Adarsh B Vasista, Harshvardhan Jog, **Ravi P. N. Tripathi**, Monica Allen, Jeffery Allen and G.V. Pavan Kumar, **Nanoscale**, 2019, **11(9)**, 3799-3803
- Large-scale dynamic assembly of metal nanostructures in plasmofluidic field, Partha Pratim Patra, Rohit Chikkaraddy, Sreeja Thampi, **Ravi P. N. Tripathi** and G.V. Pavan Kumar, **Faraday discussions**, **186** 95-1068, 2016
- Plasmofluidic single-molecule surface-enhanced Raman scattering from dynamic assembly of plasmonic nanoparticles, Partha Pratim Patra, Rohit Chikkaraddy, **Ravi P. N. Tripathi**, Arindam Dasgupta and G.V. Pavan Kumar, **Nature Comm.**, **5** 4357, 2014

### • Plasmonic Structures: Waveguiding effect and Directional Emission:

- Directional Fluorescence Emission Mediated by Chemically-Prepared Plasmonic Nanowire Junctions, Arindam Dasgupta, Danveer Singh, **Ravi P. N. Tripathi** and G.V. Pavan Kumar, **J. Phy. Chem. C**, **120 (31)** 17692-17698, 2016

- Directional out-coupling of light from a plasmonic nanowire-nanoparticle junction, ADanveer Singh, Arindam Dasgupta, V. G. Aswathy, **Ravi P. N. Tripathi** and G.V. Pavan Kumar, **Opt. lett.**, **40 (6) 1006-1009, 2015**
- Remote-excitation surface-enhanced Raman scattering with counter-propagating plasmons: silver nanowire-nanoparticle system, Arindam Dasgupta, Danveer Singh, Shreyash Tandon, **Ravi P. N. Tripathi** and G.V. Pavan Kumar, **J.Nanophotonics**, **8 (1) 083899, 2013**
- **Book Chapters:**
  - Magnetic and Nanophotonics Applications of Carbon Quantum Dots (CQDs), **Ravi P. N. Tripathi**, Vidyadhar Singh, Bharat Kumar Gupta, Nikhil Kumar, **Carbon Quantum Dots for Sustainable Energy and Optoelectronics; Woodhead Publishing Series in Electronic and Optical Materials, Elsevier, 2023, 377-396**

## AWARDS AND FELLOWSHIPS

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- Spring Career Enhancement Award (The University of Alabama at Birmingham, USA), 2020
- Visiting Research Fellowship (TIFR, Mumbai), 2017
- National Postdoctoral fellowship (NPDF), DST-SERB, 2017
- Bihar Public Service Commission (BPSC), Bihar, 2017
- SRF (IISER Pune), 2014-2017
- JRF (IISER Pune), 2012-2014
- UGC-NET, 2010

## PROFESSIONAL MEMBERSHIPS

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- **Royal Society of Chemistry**  
*United Kingdom* *2016-2017*
- **American Physical Society**  
*United State of America* *2019-2020*
- **Optica (formerly Optical Society of America)**  
*United State of America* *Lifetime*

## COMMUNITY SERVICES

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- **Journal of Nanomaterials**  
*Hindawi* *Reviewer*
- **Applied Optics**  
*OSA, USA* *Reviewer*
- **Nanotechnology**  
*IOP, UK* *Reviewer*
- **Journal of Optics**  
*IOP, UK* *Reviewer*
- **Photonics Research**  
*OSA, USA* *Reviewer*
- **Optics Express**  
*OSA, USA* *Reviewer*
- **Optics Letters**  
*OSA, USA* *Reviewer*
- **Engineering Research Express**  
*IOP, UK* *Reviewer*
- **New Journal of Physics**  
*IOP, UK* *Reviewer*
- **Materials Research Express**  
*IOP, UK* *Reviewer*
- **Frontier in Photonics**  
*Frontiers* *Guest Editor*