

PERSONAL INFORMATION **Neethish M M**

## WORK EXPERIENCE

July 2023 – Present **Postdoctoral Researcher**Sapienza University  
Rome, Italy

Conduct research, disseminate the findings, mentor students

May 2015 – August 2016 **Subject Matter Expert, Physics**SPI Technologies India Pvt. Ltd.  
Ramapuram, Chennai, India

Answering Physics related questions raised by students upto master's level

## EDUCATION AND TRAINING

2016–2022 **PhD - Thesis Title: "Supercontinuum generation in Barium Zinc Borate glasses"**

Pondicherry University, Pondicherry, India

2013–2015 **Master of Science in Physics**

Pondicherry University, Pondicherry, India

2010–2013 **Bachelor of Science in Physics**

Calicut University, Kerala

## RESEARCH EXPERIENCE

July 2023 – Present **Nonlinear Raman Spectroscopy**Postdoctoral Researcher  
Sapienza University  
Rome, Italy

Conduct research in Impulsive Vibrational Spectroscopy, focusing on ultrafast dynamics in complex materials.

August 2016 - November 2022 **Supercontinuum generation in Barium Zinc Borate glasses**PhD Thesis  
Pondicherry University  
Pondicherry, India

Studied Barium Zinc Borate glasses, correlating structure with nonlinear coefficients, optimizing supercontinuum generation, and proposing rare-earth doping to overcome bandgap dependency.

January 2019 - October 2021 **Bismuth silicate glasses -Linear and Nonlinear optical studies**DST-SERB Project Assistant  
(Junior Research Fellow)  
Pondicherry University  
Pondicherry, India

Synthesized Bismuth silicate glasses, and controlled luminescence via bismuth valence tuning

December 2014 - April 2015 **Automation of Z-scan experimental setup using LABVIEW**MSc Thesis  
Pondicherry University  
Pondicherry, India

Developed a LABVIEW program to integrate a motion controller and power meter, successfully demonstrating open and closed aperture Z-scan curves for a microscopic glass slide.

## INVITED TALKS, CONFERENCES AND WORKSHOPS

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| <p>July 2024<br/>Sapienza University<br/>Rome, Italy</p>                  | <p><b>International Conference on Raman Spectroscopy</b><br/>Delivered an oral presentation titled "Nonlinear Raman spectroscopy of ChCl-EG Deep Eutectic Solvents".</p>   |
| <p>March 2023<br/>Sullamussalam Science College<br/>Malappuram, India</p> | <p><b>National Conference on Recent Advances in Physics</b><br/>Delivered an invited talk titled "Shining light on the glass edge" at the National conference on "Recent Advances in Physics (RAP-23)".</p>  |
| <p>December 2022<br/>IIT Kharagpur<br/>Kharagpur, India</p>               | <p><b>National Laser Symposium</b><br/>Presented a poster titled "Supercontinuum generation from Barium Zinc Borate glasses" at the National Laser Symposium.</p>  |
| <p>August 2022<br/>CGCRI<br/>Kolkata, India</p>                           | <p><b>International Conference on Advances in Glass &amp; Glass-Ceramics</b><br/>Delivered an oral presentation titled "Supercontinuum generation in Barium Zinc Borate glasses: Revisiting the bandgap dependency".</p>   |
| <p>December 2019<br/>IIT Jodhpur<br/>Jodhpur, India</p>                   | <p><b>DAE-Solid State Physics Symposium</b><br/>Presented a poster titled "New candidate for red phosphor applications" at the Solid State Physics Symposium.</p>  |
| <p>October 2019<br/>IRDE<br/>Dehradun, India</p>                          | <p><b>International Conference on Optics &amp; Electro optics</b><br/>Presented a poster titled "Tailoring glasses for supercontinuum generation" at the International Conference on Optics and Electro-optics.</p>  |
| <p>July 2019<br/>IGCAR<br/>Kalpakkam, India</p>                           | <p><b>National conference on Light Matter Interaction at Nanoscale</b><br/>Presented a poster titled "Understanding the Bismuth luminescence through silver doped Bismuth silicate glasses" at the National Conference on Light Matter Interaction at Nanoscale.</p> |
| <p>December 2018<br/>SN Bose Institute<br/>Kolkata, India</p>             | <p><b>Winter School on Synchrotron Techniques in Material Science</b><br/>Attended Winter School on Synchrotron Techniques in Material Science (WSSTM) which was meant to familiarise the capabilities of synchrotron sources in material science.</p>               |
| <p>Nov 2016<br/>NIT Goa<br/>Goa, India</p>                                | <p><b>Short GIAN course on computational nonlinear optics</b><br/>Attended 10 days short course on computational nonlinear optics, which covered numerical simulations of propagation of light and its interaction with matter.</p>                                  |

## PUBLICATIONS

- [1] E. Emauele, G. Batignani, G. Cerullo, G. Leita, **M M Neethish**, E. Mai, M. Martinati, C. Mele, T. Scopigno, and B. Bozzini. "Solving ZIB challenges: the dynamic role of water in deep eutectic solvents electrolyte." In: *Journal of Material Chemistry A* 13 (2025), pp. 9778–9790.
- [2] Giovanni Batignani, Emanuele Mai, Miles Martinati, **M M Neethish**, Shaul Mukamel, and Tullio Scopigno. "Temperature Dependence of Coherent versus Spontaneous Raman Scattering." In: *Physical Review Letters* 133 (2024), p. 206902.

- [3] **M M Neethish**, V.V.R.K. Kumar, S.A. Nalam, S S Harsha, and P.P Kiran. "Supercontinuum generation from zinc borate glasses: bandgap versus rare-earth doping." In: *Optics Letters* 46 (2021), pp. 1201–1204.
- [4] **M M Neethish**, V.V.R.K. Kumar, S.A. Nalam, S S Harsha, and P.P Kiran. "Effect of chirp on supercontinuum generation from Barium Zinc Borate glasses." In: *Optics and Laser Technology* 149 (2022), p. 107890.
- [5] **M M Neethish**, J Nath, G.V. Prakash, and V.V.R.K. Kumar. "Effect of Zinc Fluoride addition on structure of barium Borate glasses for nonlinear optical applications." In: *Optical Materials* 121 (2021), p. 111626.
- [6] **M M Neethish**, J Nath, P.P Kiran, G.V. Prakash, Alok. Sharan, and V.V.R.K. Kumar. "Broad white light supercontinuum generation in Barium Zinc Borate glasses." In: *Journal of Luminescence* 251 (2022), p. 119190.
- [7] Laya Krishnan, **M M Neethish**, and V.V.R.K. Kumar. "Structural and optical studies of rare earth-free bismuth silicate glasses for white light generation." In: *Journal of Luminescence* 201 (2018), pp. 442–450.
- [8] V.S Vendamani, R Beeram, **M M Neethish**, S.V.S. Nageswara Rao, and S. Venugopal Rao. "Wafer-scale silver nanodendrites with homogeneous distribution of gold nanoparticles for biomolecules detection." In: *Iscience* 25 (2022), p. 104849.
- [9] Laya Krishnan, **M M Neethish**, V.V.R.K. Kumar, V.S Vendamani, K. Devarani Devi, D. Bharathi Mohan, P. Nandhagopal, and Namita Behera. "Photoluminescence and structural studies of Ag: Alkali Bismuth Silicate glasses." In: *Optik* 273 (2022), p. 170474.
- [10] Alan B. Samuel, **M M Neethish**, V.V.R.K. Kumar, S.A. Nalam, S S Harsha, and P.P Kiran. "Supercontinuum generation in antimony zinc borate glasses—A material perspective." In: *Journal of Applied Physics* 133 (2023), p. 093104.
- [11] P. Vijayakumari, Youssef Trabelsi, A. Trabelsi Youssef and Sharafali, and T. Liya. "Modulation instability induced supercontinuum generation in Barium Zinc Borate glass doped with Praseodymium based photonic crystal fiber." In: *Optical and Quantum Electronics* 55 (2023), p. 1057.
- [12] N Arun, **M M Neethish**, V.V.R.K. Kumar, S.V.S. Nageswara Rao, and AP. Pathak. "Resistive switching properties of hafnium oxide thin-films sputtered at different oxygen partial pressures." In: *Journal of Material Science: Materials in Electronics* 25 (2022), p. 104849.
- [13] **M M Neethish**, M.P. Kishore, and V.V.R.K. Kumar. "New candidate for red phosphor applications." In: *AIP Conference Proceedings* 2265 (2020), p. 030221.

## PERSONAL SKILLS

Mother tongue Malayalam

### Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user  
[Common European Framework of Reference for Languages](https://europa.eu/european-union/common-european-framework-reference-for-languages)

**Experimental Skills** – Melt quench glass preparation, Designing optical experiments with Femtosecond, Nanosecond, Diode & HeNe lasers

**Softwares/Packages** – MATLAB, LABVIEW, Origin, Microsoft Office Word, Powerpoint, Excel

**Material characterisations** – XRD, Raman, FTIR, UV-Vis Absorption, Photoluminescence spectroscopy

**Soft Skills** – Leadership, Project management, Data analysis, Multi-tasking, Scientific writing, Collaboration

