

# Pumlianmunga

Department of Physics  
Jamia Millia Islamia  
New Delhi-110025

+91 9650 925 637

+91 11 26984631

pumlianmunga@jmi.ac.in



Curriculum Vitae <https://jmi.ac.in/upload/employeeresume/pumlianmunga.pdf>

## Personal Information

Place of birth Hriangmun, Mizoram  
Citizenship Indian

## Education

2013—2018 Ph. D, Department of Physics, Indian Institute of Science (IISc), Bangalore, India  
Thesis title Influence of local structure and network connectivity on the electrical switching of some Te-based Chalcogenide glasses. Supervisor: Dr. K. Ramesh  
2006—2008 M.Sc. (Physics), University of Delhi, New Delhi, India  
2003—2006 B.Sc. (Physics), University of Delhi (Kirori Mal College), New Delhi, India

## Current Position

2023—present Assoc. Prof., Department of Physics, Faculty of Sciences  
2009 – 2023 Asst. Prof., Department of Physics, Faculty of Sciences  
Jamia Millia Islamia, New Delhi-110025

## Research interest

Experimental studies on thermal, electrical and optical properties of amorphous materials

## Journal publications/Conference proceedings/Chapter in books

1. Nidhi Bhatt, Shahin Parveen, Abdul Whab, Pumlianmunga, "Reduction of write current with improved thermal stability in GeSe<sub>2</sub>-doped Gb<sub>2</sub>Te<sub>3</sub> films for phase change memory applications." J. Phys. D: Appl. Phys., 57 (35), 365306, 2024.
2. Venkatesh Ramasamy, Pumlianmunga, Ramesh Karuppannan, "Synthesis of Beta Carbon Nitride Nanostructures by Simple CVD-Pyrolysis Method". Diamond and Related Materials, Vol. 11, 108172, 2021.
3. P. T. Wilson, Shweta Chahal, Pumlianmunga, M. Madhesh Kumar, K. Ramesh, "<sup>27</sup>Al MAS NMR investigations on Al<sub>23</sub>Te<sub>77</sub> glass: Observation of 5-coordinated Al and its influence on electrical switching". Solid State Comm., Vol. 293, 53–57, 2019
4. B. J. Fernandes, Pumlianmunga, K. Ramesh, N. K. Udayashankara "Thermal stability and crystallization kinetics of Bi doped Si<sub>15</sub>Te<sub>85-x</sub>Bi<sub>x</sub> (0 ≤ x ≤ 2) chalcogenide glassy alloys." Materials Today: Proceedings, Vol. 5(8), Part 3, 16237–16245, 2018.

5. B. J. Fernandes, [Pumlianmunga](#), K. Ramesh, N. K. Udayashankara, "Electrical switching and thermal behavior of ternary  $\text{Si}_{15}\text{Te}_{85-x}\text{Bi}_x$  ( $0 \leq x \leq 2$ ) chalcogenide glasses." *Materials Today: Proceedings*, Vol. 5(10), Part 1, 21292–21298, 2018.
6. [Pumlianmunga](#) and K. Ramesh, "Electrical switching in Sb doped  $\text{Al}_{23}\text{Te}_{77}$  glasses." *J. Phys. Chem. Solids*, Vol. 107, 68–74, 2017.
7. [Pumlianmunga](#) and K. Ramesh, "Electrical switching, local structure and thermal crystallization in Al-Te glasses." *Mater. Res. Bull.*, Vol. 86, 88–94, 2017.
8. [Pumlianmunga](#) and K. Ramesh, "SET and RESET states of  $\text{As}_2\text{Se}_3$  doped  $\text{Ge}_{20}\text{Te}_{80}$  bulk glasses probed by Raman spectroscopy." *J. Appl. Phys*, Vol. 120, 215105, 2016.
9. [Pumlianmunga](#), R. Venkatesh, N. Naresh, Aryan Sankhla, E.S.R. Gopal, K. Ramesh, "Influence of connectivity on the rigidity of the covalently bonded  $(\text{GeTe}_4)_{100-x}(\text{As}_2\text{Se}_3)_x$  glasses." *J. Non-Cryst. Solids*, Vol. 447, 178–182, 2016.
10. [Pumlianmunga](#), R. Venkatesh, E.S.R. Gopal, K. Ramesh, "The mechanism of memory and threshold switching in  $(\text{GeTe}_4)_{100-x}(\text{As}_2\text{Se}_3)_x$  glasses." *J. Non-Cryst. Solids*, Vol. 452, 210–219, 2016.
11. [Pumlianmunga](#), K. Ramesh, "Electrical switching and aluminium speciation in Al-As-Te glasses." *J. Non-Cryst. Solids*, Vol. 452, 253–258, 2016.
12. B. Fernandes, K. Sridharan, [P. Munga](#), K. Ramesh, N. K. Udayashankar, "Memory type switching behavior of ternary  $\text{Ge}_{20}\text{Te}_{80-x}\text{Sn}_x$  ( $0 \leq x \leq 4$ ) chalcogenide compounds." *J. Phys. D: Appl. Phys.*, 49, 295104, 2016.
13. K. Ramesh, N. Naresh, [Pumlianmunga](#), E.S.R. Gopal, "Shift of glass transition temperature under high pressure for  $\text{Ge}_{20}\text{Te}_{80}$  glass." *Key Eng. Mater.*, ISSN: 1662-9795, Vol. 702, pp 43–47, 2016.
14. K. Ramesh, [Pumlianmunga](#), R. Venkatesh, N. Naresh, E.S.R. Gopal, "Phase Change Properties of Chalcogenide Glasses-Some Interesting Observations." *Key Eng. Mater.*, ISSN: 1662-9795, Vol. 702, pp 37–42, 2016.
15. S. T. Horta, [Pumlianmunga](#), R. Venkatesh, N. Naresh, E. S. R. Gopal, K. Ramesh, "Nanophase separation in Ge-Se-Pb glasses near the charge carrier reversal threshold." *Nanoelectronics and Sensors (Book)*, Edited by V. Rajendran, K. Thyagarajah and K.E. Geckler, pp. 65–68, 2015.
16. K Ramesh, [Pumlianmunga](#), ESR Gopal, "Electrical switching in Cu doped As-Se glasses.", *Technology Letters*, Vol. 4(1), pp. 5–9, 2017(ISSN: 2348-8131).

## Other Academic Achievements

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| June 2008 | Qualified CSIR-JRF conducted by Council of Scientific and Industrial Research (CSIR) Govt. of India  |
| Feb. 2008 | Qualified Graduate Aptitude Test in Engineering (GATE) conducted jointly by IISc, and IITs, Department of Higher Education, <a href="#">Ministry of Education</a> , Govt. of India |

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## Conferences/presentations

- Attended and presented poster in International Conference on Advances in Glass Science and Technology (ICAGST-2017) CSIR-CGCRI, Kolkata, Jan. 23-25, 2017.
- Presented a paper in International Conference on Engineering Physics, Materials and Ultrasonics at The Northcap University, Gurgaon, June 3-4, 2016.
- Presented paper in International Conference on Nanomaterials and Nanotechnology (NANO -15) at Centre For Nanoscience and Technology K. S. Rangasamy College of Technology, Tiruchengode, Tamil Nadu, India, Dec. 7-10, 2015.
- Attended IUMRS-ICA 2013, held at, J. N Tata Auditorium, Indian Institute of Science, Bangalore-12, Dec. 16-20, 2013.

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## Research project

- Research project titled, "Enhance the phase change memory properties of GeSbTe thin film by the addition of Se and S, established by their electrical, optical, thermal and structural behavior", funded under the scheme Empowerment and Equity Opportunities for Excellence in Science (EMEQ), Science and Engineering Research Board (SERB), DST, Govt. of India (Rs. 4974389) for a period of three years (28 May 2019 – 27 May 2022).

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## Teaching Experience

Pre-PhD	Some Topics in Experimental Physics
Undergraduate	Mathematical Physics - I (Semester-I)
Undergraduate	Analog Systems (Semester-I)
Undergraduate	Mechanics (Semester-I)
Undergraduate	Thermal Physics, Waves & Oscillations (Semester-II)
Undergraduate	Optics (Semester-III)
Undergraduate	Nuclear and Particle Physics (Semester-VI)
Undergraduate	Laboratories (Semester - I, IV & VI)
Postgraduate	Condensed Matter Physics (Semester-II)
	Laboratory (Semester-I & II)

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## M. Sc. (IV Sem.) project supervised

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| 2023—2024 | Fayiz P. K, "Exploring Arsenic Doping for Enhanced Performance in $\text{Ge}_2\text{Sb}_2\text{Te}_5$ -based Phase Change Memory". |
| 2021—2022 | Javaid Ahmad Teli, "Preparation and Characterization of (5%) sulphur-doped $\text{Ge}_2\text{Sb}_2\text{Te}_5$ film."              |

- 2021—2022 Muzafar Hussain Wani, "Synthesis and characterisation of Se (20%)-doped  $\text{Ge}_2\text{Sb}_2\text{Te}_5$  film."
- 2021—2022 Fayaz, "Study of  $(\text{GeSbTe})_{0.95}\text{Se}_{0.05}$  and their application to non-volatile memory."
- 2021—2022 Alizer Ansari, "Preparation, characterization and electrical switching of  $\text{Si}_x\text{Te}_{80-x}\text{As}_x$  semiconductor glass."
- 2019—2020 Nissar Ali Khan, "A brief literature survey on Threshold Switching in Chalcogenide Materials".
- 2019—2020 Niyaz Ali, "Phase Change Materials and their application to non-volatile memory".
- 2019—2020 Mohd Mohsin, "A brief literature survey on: Optical properties of phase change Materials".
- 2018—2019 Ankush Vats, "Local structure and electrical switching in  $\text{AlAsTe}$  glasses".
- 2017—2018 Ezaz Samsi Aktar, "Electrical switching, local structure and thermal crystallization in  $\text{AlSeTe}$  glasses".

### Ph.D students

- 2021-present Abdul Whab, "Effect of Doping on  $\text{GeTe}$  for Phase Change Memory."
- 2021-present Nidhi Bhatt, "Investigations of the Doping Effect on  $\text{Sb}_2\text{Te}_2$  Films for Phase Change Memory."
- 2019-present Shahin parveen, "Synthesis and characterization of Phase Change Materials for memory applications."

### Participation in Faculty Development Programmes(OP,RC,etc)

- One-week  
27-10-2022  
05-11-2022 "Professional Development Programme on 'Implementation of NEP2020 for University and College Teachers", organized by Indira Gandhi National Open University Staff Training and Research Institute of Distance Education New Delhi
- One-week  
24-09-2021  
28-09-2021 "Online Elementary FDP on THEORETICAL AND PRACTICAL ASPECTS IN APPLIED PHYSICS", organized by AICTE Training And Learning (ATAL) Academy at Radha Govind Group of Institutions Meerut.
- 13-09-2021  
17-09-2021 "One-week FDP on Drug Engineering: Challenges & Innovations", organized by AICTE Training And Learning (ATAL) Academy at I.T.S. College of Pharmacy.
- Three-month  
21.08.-2021 "SWAYAM ARPIT," Refresher Course on Teacher and Teaching in Higher Education", organized by Savitribai Phule Pune University Pune.
- 04-08-2021  
08-08-2021 "One-week Faculty Development programme (FDP) on Smart and Functional Materials", organized by Department of Chemistry, NIT, Calicut.
- 04-08-2021  
08-08-2021 "Faculty Development programme on Smart and Functional Materials", organized by Department of Chemistry, National Institute of Technology, Calicut.
- Two-week  
20-03-2021  
03-04-2021 "Emerging Accessible Technologies for Teachers in Higher Education", organized by Maitreyi College, University of Delhi and Guru Angad Dev Teaching Learning Centre, SGTB Khalsa College, University of Delhi under the PMMMNMTT of MoE.

One-week 27-05-2020 01-06-2020	"Environmental Impacts of Covid-19 Pandemic: Challenges and Future Research", organized by University School of Environment Management, Guru Gobind Singh Indraprastha University.
Three-month 16.-02.-2020	SWAYAM ARPIT, "Introduction to Quantum Physics & its Applications", organized by Indian Institute of Technology Bombay".
12.07.-2019 18.07.-2019	One-week workshop on " MOOCs, E-content Development and Open Educational Resources ", organized by CPDHE (UGC-HRDC), University of Delhi, Delhi.
25.09.-2018 25.10.-2018	122 <sup>nd</sup> four-week Orientation Programme ", organized by UGC-HRDC, Jamia Millia Islamaia, New Delhi.
16.07.-2012 13.08.-2012	101 <sup>st</sup> four-week Orientation Programme ", organized by UGC-ASC, Jamia Millia Islamaia, New Delhi.

### Contribution to corporate life

2021–present	Member, Technical-cum-Sub Purchase committee of Physics Department
2010—2013	Coordinator of Pre-Ph.D Seminar, Physics Department
2016—2021	Coordinator of Pre-Ph.D Seminar, Physics Department
2018–present	Placement coordinator, Physics Department
2018—2023	Physics Association Advisor, Physics Department, JMI

Updated on January 6, 2025