

ACADEMIC PROFILE

Dr. Neeraj Mehta, (Associate Professor)
Physics Department, BHU, Varanasi

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Academic Background

- **Ph. D. (Experimental Physics)**, U. P. Technical University, Lucknow, India (2007)
- **M.Sc. (Physics)**, C.S.J.M. Kanpur University, India (First Division, 75 %), (2000)
- **B.Sc. (PCM)**, C.S.J.M. Kanpur University, India (First Division, 71.5 %), (1998)

Academic Achievements/Awards/Honors

- Awarded Young Scientists Research Award of BRNS Mumbai in 2011
- Qualified Uttar Pradesh State Level Eligibility Test (UPSLET) for lectureship in 2002
- Qualified National Eligibility Test (NET) with the award of Junior Research Fellow in 2001
- Third rank in merit list of M.Sc. (Physics) examination of C.S.J.M. Kanpur University in 2000
- Awarded National Scholarship during graduation (July 1995 to June 1998)

Affiliation to Professional Societies

- ❖ Life member – Indian Association of Physics Teachers
- ❖ Life member – Indian Physics Association

Administrative Positions Held

- ❖ Warden, Dr. C.P.R. Aiyer Hostel (March 2008 to June 2016)
- ❖ Warden, Dalmia Hostel (July 2017 onwards)
- ❖ Treasurer, Indian Physics Association Varanasi Chapter (2009-2010)
- ❖ Secretary, Indian Physics Association Varanasi Chapter (2014-2017)

Academic Positions Held

- ✚ Secretary of National Workshop on Neutron Generator and Applications (2009)
- ✚ Secretary of International Conference on multifunctional materials 2010 organized by Physics Department, BHU (2010)
- ✚ Member of Board of Studies of Physics Department, Harcourt Butler Technological Institute, Kanpur (2010-2012)
- ✚ Secretary of Summer School on Development and Characterization of Advanced Materials (2013)

Editorial Work for Journals

- Member, Editorial Board, Materials Focus (American Scientific Publishers, USA)
- Member, Editorial Board, Heliyon (Elsevier, Netherlands)

Teaching Experience:

P.G. Classes (in years): 12

U.G. Classes (in years): 14

Research Experience:

14 Years

(Excluding PhD period)

Number of Ph.D. supervised:

Produced Four Ph.D. theses. Four Ph.D. Students (Two JRFs and Two SRFs) are working under my supervision.

Number of M.Sc. Dissertations:

Produced 25 M.Sc. Dissertations

Publications

203 (Research papers)

03 (Reviews)

03 (Books)

02 (Book Chapters)

Future plans

- Investigation of radiation-induced modifications on various physical properties of non-oxide glasses
- Synthesis of chalcogenide glasses at nano-scale

Citation Report:

(i) Google Scholar Citation Indices

Google Scholar	All	From 2014
Citations	1664	853
h-index	20	12
i10-index	58	23

(ii) Research Gate Score:

RG Score
40.21



Breakdown:

98.09% Publications
1.84% Questions
0.00% Answers
0.06% Followers

Percentile:

Your score is higher than 97.5% of ResearchGate members'.

0% 50% 100%

h-index
18

h-index
15

excluding self-citations

Top h cited research:

Glass Forming Ability and Thermal Stability of Some Se-Sb Glassy Alloys

[Article](#) · Sep 2006 · Materials Research Bulletin

[See more](#)

Research Projects (Completed):

S. No.	Name of the Project	Duration	Source of Funding	Amount of Funding (Rs)
1.	Investigation of Laser Induced Crystallization in Thin Films of Some Selenium based Glassy Alloys	2010-2013	CSIR, New Delhi	11.5 Lacs
2.	Effect of Silver Incorporation on Electrical and Photoelectrical Properties of Some Se-Te and Se-Ge based Glassy Alloys	2011-2014	UGC, New Delhi	12.08 Lacs
3.	Study of Laser Induced Effects on Glass transition & Crystallization Kinetics in Selenium based Glassy Alloys	2011-2014	BRNS, Mumbai	16.85 Lacs
4.	Study of dielectric relaxation in some selenium based non-oxide glasses	2012-2015	DST, New Delhi	27.54 Lacs

Thesis Examiner of Indian Universities in Last 5 Years

C.S.J.M. University, Kanpur	Dr. A.P.J. Abdul Kalam Technical University, Lucknow	Amity University, Noida
Panjabi University, Chandigarh	Anna University, Chennai	

Research Interests

- Electrical, Dielectric, Optical and Thermal properties of Chalcogenide glasses
- Radiation-induced effects on physical properties of Amorphous Semiconductors

List of Publications (Last 5 Years)

- 1 Estimation of density of localized states in amorphous $\text{Se}_{80}\text{Te}_{20}$ and $\text{Se}_{80}\text{Te}_{10}\text{M}_{10}$ ($\text{M} = \text{Cd}, \text{In}, \text{Sb}$) alloys using a.c. conductivity measurements, **N. Chandel, N. Mehta and A. Kumar, Journal of Electronic Materials, 44 (2015) 2585-2591.**
- 2 Composition dependence of some thermo-physical properties of multi-component $\text{Se}_{78-x}\text{Te}_{20}\text{Sn}_2\text{Bi}_x$ ($0 \leq x \leq 6$) chalcogenide glasses, A. Sharma and **N. Mehta**, Journal of Materials Science, 50 (2015) 210-218.
- 3 Thermo-physical properties of multi-component $\text{Se}_{78-x}\text{Te}_{20}\text{Sn}_2\text{Pb}_x$ chalcogenide glasses A.Sharma and **N. Mehta**, Materials Chemistry and Physics, 161 (2015) 35-42.
- 4 Study of Zinc Incorporation on the Non-isothermal Crystallization in Glassy Selenium using Iso-conversional Approach, C. Dohare and **N. Mehta**, Materials Letters, 138 (2015) 171-174.
- 5 A Chronological Overview of Phase-Change Materials, **N. Mehta**, Reviews in Advanced Sciences and Engineering, 4 (2015) 173-182.
- 6 Determination of density of defect states in glassy Se_{98}M_2 ($\text{M} = \text{Ag}, \text{Cd}$ and Sn) alloys using a.c. conductivity measurements, A. Sharma and **N. Mehta**, Measurement, 75 (2015) 69-75
- 7 Glass Transition and Crystallization Kinetics in glassy $\text{Se}_{90}\text{In}_{10-x}\text{Ag}_x$, Karishma Singh, **N. Mehta**, S. K. Sharma, A. Kumar, Materials Focus, 4 (2015) 457-463.
- 8 Applicability of Augis-Bennett relation for determination of activation energy of glass transition in some Se rich chalcogenide glasses, S. Saraswat, **N. Mehta** and S. D. Sharma, Journal of Materials Research and Technology, 5 (2016) 111-116.
- 9 Thermal Analysis of Specific Heat Measurements in Glassy $\text{Se}_{80-x}\text{Te}_{20}\text{Sb}_x$ Alloys in Glass Transition Region, S. Saraswat, **N. Mehta** and S. D. Sharma, Phase Transitions, 89 (2016) 84-93.
- 10 Investigation of some thermo-mechanical and dielectric properties in multi-component chalcogenide glasses of Se-Te-Sn-Ag quaternary system, A. Srivastava and **N. Mehta**, Journal of Alloys and Compounds, 658 (2016) 533-542.

- 11 Study of Thermo-mechanical Properties of $\text{Se}_{75-x}\text{Te}_{25}\text{In}_x$ ($0 \leq x \leq 9$) Glassy Alloys, H. P. Pathak, N. Shukla, **N. Mehta** and D.K. Dwivedi, *Materials Focus*, 5 (2016) 123-127.
- 12 Some New Observations on Activation Energy of Crystal Growth for Thermally Activated Crystallization, **N. Mehta** and A. Kumar, *Journal of Physical Chemistry B*, 120 (2016) 1175-1182.
- 13 Composition Dependence of glass transition and thermal stability in glassy alloys of $\text{Se}_{90}\text{In}_{10-x}\text{Ag}_x$, Karishma Singh, **N. Mehta**, S. K. Sharma and A. Kumar, *Journal of Applied Physical Science International*, 5(2), (2016) 83-93.
- 14 Role of Bi incorporation on of glass transition in glassy $\text{Se}_{78}\text{Te}_{20}\text{Sn}_2$ alloy, H. Kumar, N. Chandel and **N. Mehta**, *Phase Transitions*, 89 (2016) 1103-1118.
- 15 Observation of Switching Behaviour in Some Multi-component Glasses of Se-Te-Sn-Pb System A. Sharma and **N. Mehta**, *Materials Letters*, 178 (2016) 178–180.
- 16 Dielectric relaxation in unexposed and laser exposed samples of $\text{Se}_{76}\text{Te}_{20}\text{Sn}_2\text{Cd}_2$ chalcogenide glass Amit Kumar, A. Sharma and **N. Mehta**, *Materials Chemistry and Physics*, 178 (2016) 39-48.
- 17 Study of dielectric relaxation and thermally activated a.c. conduction in glassy $\text{Se}_{70}\text{Te}_{30}$ and $\text{Se}_{70}\text{Te}_{28}\text{M}_2$ (M=Ag, Zn and Cd) alloys C. Dohare, M. M. A. Imran and **N. Mehta** *Journal of Asian Ceramic Society*, 4 (2016) 252-258.
- 18 Influence of Ag incorporation on Some Physical Properties of $\text{Se}_{78-x}\text{Te}_{20}\text{Sn}_2\text{Ag}_x$ Chalcogenide Glasses Ankita Srivastava and **N. Mehta**, *Advanced Science Letters*, 22 (2016) 261-265.
- 19 Experimental studies of dielectric relaxation and thermally activated a.c. conduction in $\text{Se}_{90}\text{Cd}_{10-x}\text{Sb}_x$ ($2 \leq x \leq 8$) chalcogenide glassy alloys using Correlated Barrier Hopping model, Nitesh Shukla, D. K. Dwivedi and **N. Mehta**, *Journal of Materials Science: Materials in Electronics*, 27 (2016) 12036-12049.
- 20 Dielectric Relaxation in Glassy $\text{Se}_{90}\text{Cd}_6\text{In}_4$, D. K. Dwivedi, Nitesh Shukla and **N. Mehta**, *Electronics Letters*, 52 (2016) 1548-1550.
- 21 Crystallization kinetics of glassy $\text{Se}_{90}\text{In}_{10-x}\text{Ag}_x$ alloys: Observation of Mayer-Neldel rule, Karishma Singh, N. Mehta, S. K. Sharma and Ashok Kumar, *Processing and Application of Ceramics*, 10 (2016) 137-142.
- 22 Laser-stimulated tailoring of thermo-mechanical properties in Some Se based ternary glasses, N. Chandel and **Neeraj Mehta**, *Journal of Advanced Physics*, 4 (2017) 422-425.
- 23 Laser-induced effects on structural relaxation of some Selenium based ternary glasses, N. Chandel and **N. Mehta**, *Materials Focus*, 6 (2017) 23-26.
- 24 Role of heat treatment on structural and optical properties of thermally evaporated $\text{Se}_{66}\text{Te}_{25}\text{In}_9$ thin films H. P. Pathak, **N. Mehta**, Vipin Kumar, D. K. Dwivedi, *Materials Focus*, 6 (2017) 478-482.
- 25 Applicability of single-scan DSC technique for determination of kinetic parameters of crystallization in glassy Se-Te-Ga system, **N. Mehta**, V. Dwivedi, A. K. Agnihotari and A. Kumar, *Advanced Science, Engineering and Medicine*, 9 (2017) 311-314.
- 26 Signature of compensation effect for high field conduction in amorphous thin Films of $(\text{Ge}_{20}\text{Se}_{80})_{100-x}\text{Pb}_x$ alloys, V. S. Kushwaha and **N. Mehta**, *Advanced Science, Engineering and Medicine*, 9 (2017) 315-318.
- 27 Calorimetric Studies of crystallization of Multi-component Glasses of Se-Te-Sn-Ag (STSA) System using Model-free and Model-fitting Non-isothermal Methods, Ankita Srivastava, N. Chandel and **N. Mehta**, *Journal of Thermal Analysis and Calorimetry*, 128 (2017) 907-914.
- 28 Studies of dielectric relaxation and thermally activated a.c. conduction in $\text{Se}_{78-x}\text{Te}_{20}\text{Sn}_2\text{Cd}_x$ ($0 \leq x \leq 6$) chalcogenide glass, Amit Kumar and **N. Mehta**, *Journal of Materials Science: Materials in Electronics*, 28 (2017) 5634-5644.
- 29 Iso-conversional kinetic analysis of quaternary glass re-crystallization, Ankita Srivastava, Namrata Chandel and **N. Mehta**, *Heliyon*, 3 (2017) e00249.
- 30 Correlation between some thermo-mechanical and physico-chemical properties in multicomponent glasses of Se-Te-Sn-Cd system, Amit Kumar and **Neeraj Mehta**, *Applied Physics A*, 123 (2017) 410(1-6).
- 31 Study of Dielectric Relaxation and Thermally Activated A.C. Conduction in Lead Containing Multi-Component Chalcogenide Glassy Semiconductors (ChGS), A. Sharma and **N. Mehta**, *RSC Advances*, 7 (2017) 19085-19097.
- 32 Physical ageing effect in $\text{Se}_{75}\text{Te}_{20}\text{In}_5$ chalcogenide glass, M.M.A. Imran, O. Lafi, **N. Mehta**, A.F. Alshwabkeh, A. Shaheen and A. Al-bqoor *Chalcogenide Letters*, 14 (2017) 203-209.
- 33 Molecular structure of Se-rich amorphous films, V. I. Mikla, J. M. Turovci, V. V. Mikla and **N. Mehta** *Progress in Solid State Chemistry*, 49 (2018) 1-15.

- 34 Crystallization kinetics and Avrami index of Sb-doped Se-Te-Sn chalcogenide glasses using iso-conversional techniques, D.K. Dwivedi, Vandita Rao, N. Chandel and **N. Mehta**, Phase Transitions, 91 (2018) 490-502.
- 35 Correlation between Structural and thermodynamic properties of Some Selenium based phase-change materials, N. Chandel and **N. Mehta**, Journal of Physics and Chemistry of Solids, 115 (2018) 113-118.
- 36 Thermal Analysis of Cadmium addition on the glass transition and crystallization kinetics of Se-Te-Sn Glassy Network, Amit Kumar, S. S. Fouad, M. S. El-Bana and **Neeraj Mehta**, Journal of Thermal Analysis and Calorimetry, 131 (2018) 2491-2501.
- 37 Effect of Laser Irradiation on Micro-hardness, Compactness and Raman Spectrum of Glassy $\text{Se}_{76}\text{Te}_{20}\text{Sn}_2\text{Cd}_2$ Alloy, Amit Kumar, M.M.A. Imran, A. Sharma and **N. Mehta**, Journal of Materials Research and Technology, 7 (2018) 39-44.
- 38 Study of thermo-mechanical properties of $\text{Se}_{82-x}\text{Te}_{18}\text{Sb}_x$ ($0 \leq x \leq 12$) glassy alloys, V. Rao, P. Lohia, **N. Mehta**, D. K. Dwivedi, Materials Focus, 7 (2018) 26-31.
- 39 Optical characterization of tin containing novel chalcogen rich glassy semiconductors, A. Sharma and **N. Mehta**, Optical and Quantum Electronics, 50 (2018) 106.
- 40 Effect of antimony on glass transition and thermal stability of $\text{Se}_{78-x}\text{Te}_{18}\text{Sn}_2\text{Sb}_x$ ($x = 0, 2, 4 \text{ \& } 6$ at %) multi component glassy alloys, D. K. Dwivedi, Vandita Rao, N. Chandel and **N. Mehta**, Journal of Thermal Analysis and Calorimetry, 134 (2018) 915-922.
- 41 Enhancement of polaron-hopping-based a.c. conduction in semiconducting STS (Se-Te-Sn) glass by silver incorporation, Ankita Srivastava and **Neeraj Mehta**, Dalton Transactions, 47 (2018) 10187-10194.
- 42 Laser-induced persistent photo-dielectric effects in Se-Te-Sn-Cd chalcogenide glassy semiconductors (STSC ChGs), Amit Kumar and **Neeraj Mehta**, Journal of Materials Chemistry C, 6 (2018) 2747-2759.
- 43 Universality of Meyer-Neldel Relation: Case Study of thermally activated a.c. conduction under laser irradiation, Amit Kumar and **Neeraj Mehta**, Journal of Physics and Chemistry of Solids, 121 (2018) 49-53.
- 44 Effect of Sb incorporation on thermo-mechanical properties of amorphous Se-Te-Sn alloys, V. Rao, **N. Mehta**, Amit Kumar and D. K. Dwivedi, Materials Research Express, 5 (2018) 065206.
- 45 Comprehensive studies of temperature and frequency dependent dielectric and a.c. conducting parameters in third generation multi-component glasses, N. Chandel, M.M.A. Imran and **Neeraj Mehta** RSC Advances, 8 (2018) 25468-25479.
- 46 Signature of Meyer-Neldel compensation rule in iso-conversional crystallization under the influence of γ -ray irradiation, Ankita Srivastava and **Neeraj Mehta**, Ceramics International, 44 (2018) 20827-20834.
- 47 Dielectric relaxation and thermally activated a.c. conduction in (PVDF)/(rGO) nano-composites: role of rGO over different fillers, M. I. Mohammed, S.S. Fouad and **N. Mehta**, Journal of Materials Science: Materials in Electronics, 29 (2018) 18271-18281.
- 48 Structural and ion transport properties of PVA-LiClO₄ based electrolytes on incorporation of different plasticizers, G. Hirankumar and **N. Mehta**, Heliyon, 4 (2018) e00992.
- 49 Unique supramolecular assembly through Langmuir-Blodgett (LB) technique, S. A. Hussain, B. Dey, D. Bhattacharjee and **N. Mehta**, Heliyon, 4 (2018) e01038.
- 50 Investigation of Some Physico-Chemical Properties in Multi-Component Se-Te-Sn-Sb ($0 \leq x \leq 6$) Quaternary Chalcogenide Glassy System, V. Rao, P. Lohia, **N. Mehta** and D. K. Dwivedi, Glass Physics and Chemistry, 44 (2019) 542-550.
- 51 Investigations of crystallization kinetics of $\text{Se}_{82-x}\text{Te}_{18}\text{Sb}_x$ ($x = 0, 4, 8, 12$) glassy alloys by iso-conversional approach, Vandita Rao, **N. Mehta** and D. K. Dwivedi, Materials Research Innovations, 23 (2019) 141-148.
- 52 Synthesis and thermal characterization of novel phase change materials (PCMs) of Se-Te-Sn-Ge (STSG) multi-component system: Calorimetric studies of glass/crystal phase transition, Shiv Kumar Pal, N. Chandel and **N. Mehta**, Dalton Transactions, 48 (2019) 4719-4729.
- 53 Characterization of novel SeTeSn Chalcogenide Glassy Alloy (STS ChGA) as shielding material for nuclear waste immobilization applications: Case study of its resistance against γ -ray irradiation Ankita Srivastava, Namrata Chandel and **Neeraj Mehta**, Journal of Environmental Chemical Engineering, 7 (2019) 103032.
- 54 Temperature dependence of some thermo-physical properties of PbTe Pellets, V. Kishore, Vichitra Kumar, G. Jain, N. S. Saxena and **N. Mehta**, Advanced Science, Engineering and Medicine, 11 (2019) 659-661.

- 55 Tuning of dielectric properties in $\text{Se}_{78}\text{Te}_{20}\text{Sn}_2$ glass using UV-Vis-IR Lasers, Amit Kumar and **N. Mehta** Optical Materials, 95 (2019) 109198.
- 56 Signature of Rigidity Percolation Effect on Dielectric Behavior of Germanium Containing Multi-component Chalcogenide Glasses (ChGs), Shiv Kumar Pal, Amit Kumar and **N. Mehta**, Ceramics International, 45 (2019) 16279-16287.
- 57 Novel approach for thermal analysis of glass transition, Ankita Srivastava, N. Chandel and **N. Mehta**, Materials Science & Engineering B, 247 (2019) 114378.
- 58 Analysis of physicochemical properties in covalent network chalcogenide glasses (ChGs): Critical Review of theoretical modeling of chemical bond approach, N. Chandel and **N. Mehta**, SN Applied Sciences, 1 (2019) 657.
- 59 Effect of Ag and γ -ray irradiation on the specific heat of glass transition of $\text{Se}_{78}\text{Te}_{20}\text{Sn}_2$ glassy alloy, Ankita Srivastava, **N. Mehta**, J. C. MacDonald and D. Sharma, Materials Research Express, 6 (2019) 095201.
- 60 Studies of high field conduction and resistive switching in Germanium containing bulk Selenium rich Se-Te-Sn Glasses: Peculiarities of current-voltage characteristics, S. K. Pal, Ankita Srivastava and **Neeraj Mehta**, Journal of Alloys and Compounds, (In press).