

## CURRICULUM-VITAE

Dr. A. S. Maan

Professor, Department of Physics,  
Maharshi Dayanand University, Rohtak  
E-mail: [asmaan66@rediffmail.com](mailto:asmaan66@rediffmail.com)



Contact No: +91-1262-393345

### 1. Educational Qualification

Degree	Year of Passing	University/Institute
Ph.D.	1990	M. D. University, Rohtak
PG	1986	-do-
UG	1984	-do-
Others	-----	-----

### 2. Career Profile:

Designation	Institute served	Duration	
		From	To
Lecturer	University College Rohtak	29/10/87	10/03/88, 03/10/88 - 27/05/91
Joined the Department of Physics as Lecturer on 27/05/1991. Currently working as Professor, since 2007.	Physics Department, M. D. University, Rohtak	27/05/1991	

### 3. Research Advisory

No. of Students Supervised	Ph.D.	M.Phil.
	07	Three
	Three students are currently working for their Ph. D degree.	

### 4. Projects Undertaken:

Title of the project	Duration	Funding Agency	Status
“Electronic and Photoelectric properties of Amorphous Semiconductors”	Three years	DST	Completed
“Study of Electronic and optical properties of Ion Irradiated Semiconductors”.	Three years	NSC	Completed
UGC – SAP (DRS – I) Condensed Mater Physics Including Polymer Physics (Coordinator)	5 years (2012 –2017)	UGC	Completed

### 5. Other contributions

- In terms of various academic/administrative activities as member of different bodies such as Court, Academic Council, Board of studies etc. of M. D. U. and also of other Universities /Institutions
- Associated with examination work (Theory / Practical) and also pertaining to evaluation of research work of various universities

- Life member, Indian Physical Society (IACS) Kolkata

## 6. List of Research Publications: International/National Journals

- [1] Vibhor Kumar, Anup S Maan, Jamil Akhtar, Tailoring Surface and Electrical Properties of Ni/4H nSiC Schottky Barrier Diodes via Selective Swift Heavy Ion Irradiation, *physica status solidi (a)* 2018.
- [2] D. Singh, V.S. Kundu, A.S. Maan, Structural, morphological and gas sensing study of zinc doped tin oxide nanoparticles synthesized via hydrothermal technique, *Journal of Molecular Structure*, 1115 (2016) 250-257.
- [3] V. Kumar, N. Kaminski, A.S. Maan, J. Akhtar, Capacitance roll-off and frequency-dispersion capacitance-conductance phenomena in field plate and guard ring edge-terminated Ni/SiO<sub>2</sub>/4H-nSiC Schottky barrier diodes, *Physica Status Solidi (A) Applications and Materials Science*, 213 (2016) 193-202.
- [4] S. Dahiya, R. Punia, S. Murugavel, A.S. Maan, Conductivity and modulus formulation in lithium modified bismuth zinc borate glasses, *Solid State Sciences*, 55 (2016) 98-105.
- [5] D. Singh, V.S. Kundu, A.S. Maan, Structural, morphological and gas sensing study of palladium doped tin oxide nanoparticles synthesized via hydrothermal technique, *Journal of Molecular Structure*, 1100 (2015) 562-569.
- [6] V. Kumar, S. Pawar, A.S. Maan, J. Akhtar, Diameter dependent thermal sensitivity variation trend in Ni/4H-SiC Schottky diode temperature sensors, *Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics*, 33 (2015).
- [7] S. Dahiya, R. Punia, A. Singh, A.S. Maan, S. Murugavel, DC Conduction and Electric Modulus Formulation of Lithium-Doped Bismuth Zinc Vanadate Semiconducting Glassy System, *Journal of the American Ceramic Society*, 98 (2015) 2776-2783.
- [8] S. Dahiya, R. Punia, S. Murugavel, A.S. Maan, Structural and other physical properties of lithium doped bismuth zinc vanadate semiconducting glassy system, *Journal of Molecular Structure*, 1079 (2015) 189-193.
- [9] V. Kumar, A.S. Maan, J. Akhtar, Barrier height inhomogeneities induced anomaly in thermal sensitivity of Ni/4H-SiC Schottky diode temperature sensor, *Journal of Vacuum Science and Technology B: Microelectronics and Nanometer Structures*, 32 (2014).
- [10] S. Dahiya, R. Punia, S. Murugavel, A.S. Maan, Temperature and frequency dependent conductivity of lithium doped bismuth zinc vanadate semiconducting glassy system, *Indian Journal of Physics*, 88 (2014) 1169-1173.
- [11] V.S. Kundu, R.L. Dhiman, D. Singh, A.S. Maan, Methanol assisted synthesis and characterization of tin oxide nanoparticles, in: *AIP Conf. Proc.*, 2013, pp. 275-276.
- [12] V. Kumar, A.S. Maan, J. Akhtar, Selective SHI irradiation for mesa type edge termination in semiconductor planar junction, *Journal of Physics: Conference Series*, 423 (2013).
- [13] R.L. Dhiman, V.S. Kundu, S. Arora, A.S. Maan, Structural and physical properties of vanadium doped copper bismuth borate glasses, in: *AIP Conf. Proc.*, 2013, pp. 598-599.
- [14] R.L. Dhiman, V.S. Kundu, S. Arora, A.S. Maan, Physical and electrical properties of copper oxide doped bismuth borate glasses, in: *AIP Conf. Proc.*, 2013, pp. 685-686.
- [15] S. Dahiya, A.S. Maan, R. Punia, R.S. Kundu, S. Murugavel, Physical, optical and structural properties of xNa<sub>2</sub>O-(50-x) Bi<sub>2</sub>O<sub>3</sub>-10ZnO-40B<sub>2</sub>O<sub>3</sub> glasses, in: *AIP Conf. Proc.*, 2013, pp. 566-567.
- [16] S. Arora, V. Kundu, D.R. Goyal, A.S. Maan, Effect of stepwise replacement of LiF by ZnO on structural and optical properties of LiF.B<sub>2</sub>O<sub>3</sub> glasses, *Turkish Journal of Physics*, 37 (2013) 229-236.

- [17] S. Arora, S. Dahiya, V. Kundu, D.R. Goyal, A.S. Maan, DSC and DC conductivity of ZnO.LiF.B<sub>2</sub>O<sub>3</sub> glasses, in: AIP Conf. Proc., 2013, pp. 681-682.
- [18] V. Kumar, J. Akhtar, K. Singh, A.S. Maan, Simulation based analysis of temperature effect on breakdown voltage of ion implanted Co/n-Si schottky diode, Journal of Nano- and Electronic Physics, 4 (2012).
- [19] S. Dahiya, A.S. Maan, R. Punia, R.S. Kundu, S. Murugavel, Physical, Optical and Structural Properties of xLi<sub>2</sub>O-(50-x)Bi<sub>2</sub>O<sub>3</sub>-10ZnO-40B<sub>2</sub>O<sub>3</sub> Glasses, Transactions of the Indian Ceramic Society, 71 (2012) 225-228.
- [20] V. Kundu, R.L. Dhiman, A.S. Maan, D.R. Goyal, Optical properties of alkaline earth ions doped bismuth borate glasses, in: AIP Conf. Proc., 2011, pp. 545-546.
- [21] V. Kundu, R.L. Dhiman, A.S. Maan, D.R. Goyal, Structural investigation of Li<sub>2</sub>O-Bi<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub> glasses, in: AIP Conf. Proc., 2011, pp. 541-542.
- [22] M.S. Sheoran, N. Kishore, R. Dhar, A.S. Maan, FTIR and Raman spectra of xB<sub>2</sub>O<sub>3</sub> (95-x) TeO<sub>2</sub> 5Fe<sub>2</sub>O<sub>3</sub> glasses, Asian Journal of Spectroscopy, 14 (2010) 85-92.
- [23] V. Kundu, R.L. Dhiman, A.S. Maan, D.R. Goyal, S. Arora, Characterization and electrical conductivity of Vanadium doped strontium bismuth borate glasses, Journal of Optoelectronics and Advanced Materials, 12 (2010) 2373-2379.
- [24] V. Kundu, R.L. Dhiman, A.S. Maan, D.R. Goyal, Optical and spectroscopic studies of ZnO-Bi<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub> glasses, Journal of Optoelectronics and Advanced Materials, 11 (2009) 1595-1600.
- [25] R.L. Dhiman, V.S. Kundu, A.S. Maan, D.R. Goyal, Characterization of aluminum doped zinc borate glasses, Journal of Optoelectronics and Advanced Materials, 11 (2009) 1002-1006.
- [26] A.S. Maan, D.R. Goyal, Dielectric properties of In-Se-Te glassy alloys, Indian Journal of Engineering and Materials Sciences, 15 (2008) 207-210.
- [27] V. Kundu, R.L. Dhiman, D.R. Goyal, A.S. Maan, Physical and electrical properties of semiconducting Fe<sub>2</sub>O<sub>3</sub>-V<sub>2</sub>O<sub>5</sub>-B<sub>2</sub>O<sub>3</sub> glasses, Optoelectronics and Advanced Materials, Rapid Communications, 2 (2008) 428-432.
- [28] V. Kundu, R.L. Dhiman, D.R. Goyal, A.S. Maan, Effect of V<sub>2</sub>O<sub>5</sub> on structural, physical and electrical properties of bismuth borate glasses, Journal of Optoelectronics and Advanced Materials, 10 (2008) 2765-2770.
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- [30] A.S. Maan, D.R. Goyal, Study of crystallization kinetics of Te<sub>5</sub>(In<sub>x</sub>Se<sub>100-x</sub>)<sub>95</sub> glassy alloys, Chalcogenide Letters, 4 (2007) 89-96.
- [31] J. Malik, K.L. Bhatia, N. Kishore, D. Kabiraj, A.S. Maan, MeV energy Lithium ion irradiated crystalline GaAs: An optical study, Radiation Measurements, 36 (2003) 647-652.
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- [36] A. S. Maan, L. R. Sharma, H. S. Dahiya and D. R. Goyal, Study of Laser Induced Photoconductivity in Thin Films of Amorphous Sb<sub>15</sub>Ge<sub>5</sub>Se<sub>80</sub> Alloy, Journal de Physique III, France 3 (1993) 1211.
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- [38] A. S. Maan, D. R. Goyal and A. Kumar, Photoconductivity in the Thin Films of Amorphous  $Ga_{40}Se_xTe_{60-x}$ , *Revue de Physique Appliquee* 24 (1989) 613.
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- [40] A.S. Maan, D.R. Goyal, A. Kumar, Steady-state photoconductivity and decay kinetics in thin films of  $a-In_{20}Se_{80}$ , *Journal of Non-Crystalline Solids*, 110 (1989) 53-60.
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**CONTRIBUTION IN VARIOUS INTERNATIONAL / NATIONAL CONFERENCES / SEMINARS / SYMPOSIA**

1. Transient photoconductivity in  $a$ - thin films of  $In_{40}Se_{30}Te_{30}$ , *Solid state physics symp. BARC, Bombay 1987.*
2. Anomalous rise of photocurrent in thin films of  $a-In_{20}Se_{80}$ , *Solid state physics symp. BARC, Bombay 1987.*
3. Non exponential decay of photocurrent in thin films of  $a-Sb_{15}Ge_{10}Se_{75}$ , *19th national seminar on crystals. Gandhiji University, Changanacherry, 1987.*
4. Photocurrent decay in thin films of  $a-In_{20}Se_{80}$ , *19th national seminar on crystals. Gandhiji University, Changanacherry, 1987.*
5. Steady state photoconductivity and decay kinetics in amorphous thin films of  $Ga_{40}Se_{30}Te_{30}$ , *National seminar on Physics and applications, I.A.C.S. Calcutta 1988.*
6. Photoconduction in  $a$ -thin films of  $Ga_{40}Se_xTe_{60-x}$ , *Solid state physics symp. Bhopal University, Bhopal, 1988.*
7. Electrical properties of  $a-Sb_{15}Ge_{10}Se_{75}$ , *Solid state physics symp. Bhopal University, Bhopal, 1988.*
8. Photoconductivity in thin films of  $a-In_{40}Se_{20}Te_{40}$ , *Vth national seminar on ferroelectrics and dielectrics, S.V.University, Tirupati, 1989.*
9. Temperature dependence of a.c. conductivity in glassy  $Ga_{40}Se_{40}Te_{20}$ , *Vth national seminar on ferroelectrics and dielectrics, S.V.University, Tirupati, 1989.*
10. FIR absorption in amorphous  $Sb_{15}Ge_xSe_{85-x}$  glasses, *Second national conference on disordered materials, H.B.T.I. Kanpur, 1991.*
11. Photoconductivity in  $a-Sb_{15}Ge_xSe_{85-x}$  glasses, *Second national conference on disordered materials, H.B.T.I. Kanpur, 1991.*
12. Frequency dependent conductivity in  $a-In-Se-Te$  system, *Second national conference on disordered materials, H.B.T.I. Kanpur, 1991.*
13. Steady state and transient photoconductivity in  $a-In_{10}Se_{90}$ , *Solid state physics symp. S.V.University, Tirupati, 1992.*
14. Molecular structure of  $Sb-Ge-Se$  glasses, *Solid state physics symp. BARC, Bombay, 1993.*
15. Charge transport in thin films of  $a-In-Se$  alloys, *Solid state physics symp. BARC, Bombay, 1993.*
16. Optical absorption in thin films of  $a-Ga-Se-Te$  alloys, *Solid state physics symp. BARC, Bombay, 1993.*

17. Investigation of photoconduction and recombination kinetics in a- thin films of  $\text{In}_x \text{Se}_{100-x}$  alloys using a laser, *International seminar on CDDM, K.U.Kurukshetra, 1996.*
18. Study of crystallization kinetics in glassy  $\text{Te}_{15}(\text{In}_x\text{Se}_{100-x})_{85}$ , *DAE Solid state physics symp. Kochi, 1997.*
19. Study of recombination kinetics in amorphous Sb-Ge- Se alloys. *DAE Solid state physics symp. Kochi, 1997.*
20. Optical absorption properties of a-  $\text{Sb}_{15}\text{Ge}_x\text{Se}_{100-x}$  alloys. *Ninth annual general meeting, MRSI, Madras, 1998.*
21. Study of crystallization kinetics in a-  $\text{Sb}_x \text{Se}_{100-x}$ , *Ninth annual general meeting, MRSI, Madras, 1998.*
22. Kinematics studies of glass transition in  $\text{Te}_{15}(\text{In}_x\text{Se}_{100-x})_{85}$  alloys. *Ninth annual general meeting, MRSI, Madras, 1998.*
23. Optical absorption properties of a-  $\text{Te}_{15}(\text{In}_x\text{Se}_{100-x})_{85}$ . *National seminar on characterization of semiconductor materials for device applications, GNDU, Amritsar, 1998.*
24. Kinematics studies of glass transition in  $\text{Sb}_x \text{Se}_{100-x}$  alloys. *National seminar on characterization of semiconductor materials for device applications, GNDU, Amritsar, 1998.*
25. Laser Induced Photoconductivity and Recombination Kinetics in  $\text{Sb}_x\text{Se}_{100-x}$  Glassy Alloys. *44<sup>th</sup> Solid State Physics Symposium, BARC Mumbai (2001).*
26. Laser Induced Photoconductivity and Recombination Kinetics in  $\text{Sb}_x\text{Se}_{100-x}$  Glassy Alloys. *44<sup>th</sup> Solid State Physics Symposium, BARC Mumbai (2001).*
27. Effect of annealing on the electronic properties of a- thin films of  $\text{Ga}_{20}\text{Te}_{80-x}\text{Bi}_x$ . *National conference on frontiers in material science and technology, I.I.T. Kharagpur, 2002.*
28. Study of surface morphology and atomic spectra of  $\text{As}_2\text{S}_3$  thin films irradiated with 75 MeV Ge ions, National Seminar on Physics of Materials for Electronic and Optoelectronic Devices, J. N. V. University, Jodhpur 2002.
29. Dielectric properties of a-  $\text{Ga}_{40} \text{Se}_x \text{Te}_{60-x}$  alloys. *National symposium on frontiers in condensed matter physics, G.J.U. Hissar, 2002.*
30. Temperature and frequency Dependence of Permittivity of Ga-Se-Te Glassy Alloys. *48<sup>th</sup> DAE Solid State Physics Symposium, Gwalior 2003.*
31. DC conductivity and study state photoconductivity in thin film of  $\text{Sb}_x\text{Se}_{100-x}$  glasses. *48<sup>th</sup> DAE Solid State Physics Symposium, Gwalior 2003.*
32. Transient Photo Conductivity and recombination kinetics in  $\text{Te}_5(\text{In}_x\text{Se}_{100-x})_{95}$  glasses, *49<sup>th</sup> DAE Solid State Physics Symposium, 2004 GNDU, Amritsar.*
33. Laser Induced steady state photoconductivity and recombination mechanism in  $\text{In}_x\text{Se}_{100-x}$  glassy alloys, *49<sup>th</sup> DAE Solid State Physics Symposium, 2004 GNDU, Amritsar.*
34. Kinetics of glass transition and crystallization in  $\text{Te}_5(\text{In}_{10}\text{Se}_{90})_{95}$  glassy alloy, *15<sup>th</sup> National symposium on thermal analysis, 2006, University of Rajasthan, Jaipur.*
35. Dielectric properties of In-Se-Te glassy alloys. *XIV<sup>th</sup> National Seminar on Ferroelectrics and Dielectrics, IIT Kharagpur 2006.*
36. Investigation of Photoconductivity and Recombination Mechanism in Thin Films of  $\text{Te}_x(\text{In}_{10}\text{Se}_{90})_{100-x}$  Glassy Alloys. *XIV<sup>th</sup> National Seminar on Ferroelectrics and Dielectrics, IIT Kharagpur 2006.*
37. Kinematic Studies of Glass Transition and Crystallization in  $\text{Sb}_5\text{Se}_{95}$  Glassy Alloy by DSC Technique. *51<sup>st</sup> DAE Solid State Physics Symposium, Bhopal 2006.*
38. Electrical conductivity of  $\text{V}_2\text{O}_5\text{-Bi}_2\text{O}_3\text{-B}_2\text{O}_3$  glasses, *52<sup>nd</sup> DAE Solid State Physics Symposium, Mysore 2007.*

39. Effect of SrO on Physical and optical properties of vanadyl doped bismuth borate glasses, 52<sup>nd</sup> DAE Solid State Physics Symposium, Mysore 2007.
40. Structural and optical properties of vanadyl doped SrO-Bi<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub> glasses Accepted for presentation at XV<sup>th</sup> National Seminar on Ferroelectrics and Dielectrics, Thapar University, Patiala 2008.
41. Optical properties of zinc doped bismuth borate glasses. 53<sup>rd</sup> DAE, Solid State Physics Symposium, 53(2008) 565.
42. Cation distribution in aluminum substituted Mn-Zn ferrites from X-ray diffraction and magnetization measurements, 54<sup>th</sup> DAE, Solid State Physics Symposium, 54 (2009) 979.
43. Optical properties of alkaline earth ions doped bismuth borate glasses, DAE, Solid State Physics Symposium Dec.2010,
44. Structural investigation of Li<sub>2</sub>O-Bi<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub> glasses, DAE, Solid State Physics Symposium Dec.2010
45. 2<sup>nd</sup> National conference on "Advanced Materials and Radiation Physics" held on November 4-5, 2011 at Sant Longowal Institute of Engineering and Technology, Longowal, Sangrur (Punjab). "Effect of Stepwise Replacement of Non-oxide to Oxide Group on Structural Properties of Bi<sub>2</sub>O<sub>3</sub>.LiF.B<sub>2</sub>O<sub>3</sub> Glasses".
46. National conference on "Condensed Matter Physics" held on February 24-25, 2012 at BITS Pilani, Pilani (Rajasthan). "FTIR Spectroscopy of Some Iron Fluoroborate Glasses".
47. International conference on "Materials Science and Technology" held on June 10-14, 2012 at St. Thomas College, Pala (Kerala), "Effect of Stepwise Replacement of LiF by Fe<sub>2</sub>O<sub>3</sub> on Structural and Optical Properties of LiF.B<sub>2</sub>O<sub>3</sub> Glasses".
48. 57<sup>th</sup> DAE Solid State Physics Symposium held on December 3-7, 2012 at IIT Bombay, Mumbai (Maharashtra). "Structural and Physical Properties of Vanadium Doped Copper Bismuth Borate Glasses".
49. International conference on "Recent Trends in Applied Physics & Material Science" held on February 01-02, 2013 at Govt. College of Engineering and Technology, Bikaner (Rajasthan). "DSC and DC Conductivity of ZnO.LiF.B<sub>2</sub>O<sub>3</sub> Glasses".
50. Kulwant Singh, V N Uvais, C K Subash, Vibhor Kumar, A S Maan, S. Varghese and J.Akhtar "A Study of CNT as Emerging Material for MEMS/NEMS Based Pressure Sensor Application" presented at International Conf. on Emerging Technologies - Micro to Nano 23-24 February 2013, Goa, India.
51. Sanjeev K. Gupta, Vibhor Kumar, Nirmal Pradhan, Surajit Das, A.S. Maan and J. Akhtar "Fabrication and temperature dependent electrical characterization of Ni/4H-SiC (0001) Schottky barrier diodes equipped with field plate and guard ring terminations structure" presented at International Conference on Diamond and Carbon Materials, 2-5 September 2013, Italy.
52. Vibhor Kumar, A. S. Maan, S. Kumar, S. Das and I. Akhtar "Electrical Performance of Nichrome/Silicon Schottky Diode" Presented at IEEE International Conference on Electronics Technology and Industrial Development, October 23-24, 2013, Bali- Indonesia.
53. V. S. Kundu, Davender Singh, A. S. Maan, Nikhil and R.L. Dhiman "Synthesis and structural characterization of Palladium doped tin oxide nanoparticles" presented in National Seminar on Advancements In Material Science (NSAIMS-20 14) March, 2014, AIJHM, Rohtak. Virender Singh Kundu, R. L. Dhiman, Davender Singh and A. S. Maan "Methanol assisted synthesis and characterization of tin oxide
54. Davender Singh, V. S. Kundu, A. S. Maan "Synthesis and structural characterization of zinc doped tin oxide nanoparticles" presented in National Conference on Emerging Trends in Physics and Materials Science (ETPMS-15) March, 2015 CDL University Sirsa.
55. Davender Singh, V. S. Kundu, A. S. Maan and R.L. Dhiman "Synthesis of antimony doped by tin oxide nanoparticles by sol-gel technique and their characterization" presented in National Seminar on Recent

- Developments in Theoretical and Experimental Physics (RDTEP-15) March, 2015, S. D. College (Lahore) Ambala.
56. Davender Singh, V. S. Kundu and A. S. Maan "Synthesis and structural characterization of tin oxide nanofibres" presented in National Conference on Recent Developments in Mechanical Engineering (NCRDME-2015) UIET Rohtak.
  57. Virender Singh Kundu, Davender Singh, A. S. Maan and Amit Tanwar "Structural, morphological, optical and photo catalytic investigation of Ag-doped  $\text{TiO}_2$ " presented in International Conference on Condensed matter and applied physics (ICC-2015) October, 2015, Govt. college of Engineering. And Technology Bikaner.
  58. Davender Singh, V. S. Kundu and A.S. Maan "Structural and morphological investigation of Te- doped CDO (Cadmium oxide) nanoparticles" presented in National Conference on Current Advancement in Theoretical and Experimental Physics (CATEP-15) November, 2015, S. D. College (Lahore) Ambala.