

CURRICULUM VITAE

Dr. Shabir Ahmad Kumar

Assistant Professor

Department of Physics,

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Date of birth: *12/11/1982*

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Research Interest

Nano-structured Compound Semiconductors for solar cell and other optoelectronic device applications

Specialization

Experimental Condensed Matter Physics

Formal Education

- i. Doctor of Philosophy (Ph.D)** Awarded on 17th February-2017, Department of Physics, Jamia Millia Islamia, A Central University, New Delhi-110025, India, under the Supervision of **Prof. M. Zulfequar** and co-supervision of **Dr Mohd. Shahid Khan**.
Thesis Title: *Effect of Laser, Gamma-ray and Swift Heavy Ion Irradiation on Compound Semiconductors.*
- ii. Master of Philosophy (M.Phil)** in Physics, Department of Physics., Awadhesh Pratap Singh University, Rewa (M.P.), 2011, under the supervision of **Prof. A.P. Mishra**.
Dissertation Title: *Study of interplanetary coronal mass ejections during solar cycle 23.*
- iii. Master of Physics (M.Sc)**, Department of Physics., University of Kashmir, 2005-2007.
Project Title: *The Spatial Distribution of Clusters of Galaxies.*
- iv. B.Sc.**, Amar Singh College Srinagar, University of Kashmir, Hazratbal Srinagar (Jammu and Kashmir), 2002-2005.

Topical Foci

Material Science: Chalcogenide Semiconductors, Nano-structured Compound Semiconductors, Radiation Effect of Semiconductor materials, Solar Cell Materials.

Astrophysics: Dark Matter, Galaxies, Various Phenomena's occurs in Sun, Study of Cosmic rays.

Research Experience

Six years (two years in M. Phil from APS University Rewa, M. P and four years of Ph. D from Jamia Millia Islamia, New Delhi)

Achievements

- UGC BSR (Basic Scientific Research) Fellowship Awarded during Ph.D.
- Principle Investigator of R&D Approved Project: "Study of Physical Properties of Chalcogenide based Compound Semiconductors for Solar Cell Applications", Funded by J&K State Council for Science and Technology, Department of Science and Technology, Govt of Jammu and Kashmir-India.

Teaching Experience

1. Assistant Professor/Lecturer, Department of Physics, Islamic University of Science and Technology, Awantipora, Pulwama (J&K) from 01-09-2017 to till date.
2. Lecturer, Department of Physics, Govt. Degree College Bijbehara, affiliated with University of Kashmir, from 24-04-2017 to 31-08-2017.

List of Publications

1. Investigation of Optical Properties of CNT-Se bi-layer system Mixed by 70 MeV Ni⁷⁺ ions, submitted to *Journal of Physics and Chemistry of Solids* 30 april-2023
2. Study of Physical Properties of Nano-structured Thin Films of Se-S-Hg Crystalline Alloy Deposited by Thermal Evaporation Technique, submitted to *Royal Society of Chemistry Advances of Solids* 12 june-2023
3. Shakeel Ahmad Khandy, Ishtihadah Islam, Dinesh C. Gupta, Muzzammil Ahmad Bhat, [Shabir Ahmad](#), Tanveer Ahmad Dar, Seemin Rubab, Shobhna Dhimane and A. Lareff, A case study of Fe₂TaZ (Z = Al, Ga, In) Heusler alloys: hunt for half-metallic behavior and thermoelectricity, *Royal Society of Chemistry Advances*, 8 (2018) 40996–41002 (impact factor: 4.036)
4. [Shabir Ahmad](#), Shama Islam, Mohd. Nasir, K. Asokan, M. Zulfequar, Effect of gamma-ray irradiation on optical properties of amorphous Se_{100-x}Hg_x thin films, *Journal of Physics and Chemistry of Solids*, 117 (2018) 122–130.(impact factor: 3.995)
5. Shama Islam, [Shabir Ahmad](#), Hana Khan, M. Zulfequar, Enhancement in the Dielectrics of Poly (o-toluidine)/ Single walled carbon nanotubes (POT/SWCNTS) Polymer nanocomposites for electrical energy storage, *Journal of Materials Science: Materials Electron*, January

2018, vol. 27, Issue 1, pp 77–81. <https://doi.org/10.1007/s10854-018-9448-7>. (impact factor: 2.478)

6. [Shabir Ahmad](#), K. Asokan, M. Zulfequar, Laser Irradiation Induced Photo-crystallization in Nano-Structured Amorphous $Se_{90-x}Hg_xS_{10}$ ($x = 0, 5, 10, 15$) Thin Films, *Royal Society of Chemistry Advances*, 6 (2016) 44321-44332. (impact factor: 4.036)
7. R. A Zargar, M. Arora, S. Chackrabarti, [Shabir Ahmad](#), J Kumar, AK Hafiz, Alcohol vapor sensing by cadmium-doped zinc oxide thick films based chemical sensor, *Modern Physics Letters B*, (2016) 1650244. DOI: 10.1142/S0217984916502444. (impact factor: 1.594)
8. [Shabir Ahmad](#), Mohd. Nasir, K. Asokan, Mohd. Shahid Khan and M. Zulfequar, Electronic excitation induced structural, optical and electrical properties of $Se_{85}S_{10}Zn_5$ thin films and applicability of a single oscillator model, *Royal Society of Chemistry Advances*, 5 (2015) 69400–69409. (impact factor: 4.036)
9. [Shabir Ahmad](#), K. Asokan, Mohd. Shahid Khan & M. Zulfequar, Effect of ^{60}Co γ -irradiation on structural and optical properties of thin films of $Ga_{10}Se_{80}Hg_{10}$, *Philosophical Magazine*, Vol. 95, No. 22 (2015) 2385–2402. (impact factor: 1.632)
10. [Shabir Ahmad](#), K. Asokan and M. Zulfequar, Investigation of structural and optical properties of 100 MeV F^{7+} ion irradiated $Ga_{10}Se_{90-x}Al_x$ thin films, *Philosophical Magazine*, Vol. 95, No. 12 (2015) 1309–1320. (impact factor: 1.632)
11. Riti Sethi, [Shabir Ahmad](#), Azher Majid Siddiqui and Anver Aziz Structural, Optical and Electrical properties of Semiconducting indium oxide thin film grown by thermal evaporation technique, *Invertis Journal Renewable energy*, Vol. 5, No. 3 (2015) 166-170. (impact factor: 4.165)
12. [Shabir Ahmad](#), Mohsin Ganaie, Mohd. Shahid Khan, M. Zulfequar, Effect of laser and visible light Irradiation on structural and optical properties of thin films of amorphous selenium and selenium mercury (80:20 composition), *Advanced Materials Letters*, 5(9), (2014) 511-519. (impact factor: 0.411)
13. [Shabir Ahmad](#), Mohsin Ganaie, Mohd. Shahid Khan, K. Asokan and M. Zulfequar, Effect of laser irradiation on structural and optical properties of thermally evaporated thin films of amorphous $Cd_5Se_{95-x}Zn_x$, *Radiation Effects & Defects in Solids*, Vol. 170, No. 1, (2015) 30–42. (impact factor: 1.141)
14. [Shabir Ahmad](#), K. Asokan, Mohd. Shahid Khan and M. Zulfequar, Structural and optical analysis of ^{60}Co gamma-irradiated thin films of polycrystalline $Ga_{10}Se_{85}Sn_5$, *Radiation Effects & Defects in Solids*, Vol. 170, No. 1, (2015) 956–969. (impact factor: 1.141)

15. [Shabir Ahmad](#), Mohd. Shahid Khan, K. Asokan, M. Zulfequar, Effect of gamma irradiation on the structural and optical properties of thin films of α -CdSe, *Optik* **126** (2015) 3501–3505. (impact factor: 2.443)
16. Mohsin Ganaie, [Shabir Ahmad](#), M. Zulfequar, Electrical transport mechanism in $Cd_5Se_{95-x}Zn_x$ chalcogenide thin films, *Journal of Materials Science: Materials Electron*, January 2016, vol. 27, Issue 1, pp 77–81. (impact factor: 2.478)
17. [Shabir Ahmad](#), K. Asokan and M. Zulfequar, Effect of Gamma Irradiation on Structural and optical properties of Thin Films of α - $Cd_5Se_{95-x}Zn_x$, *International Journal of Thin Films Science and Technology*, Vol. 4, No. 2, (2015) 103-109. (impact factor: 0.60)
18. RitiSethi, [Shabir Ahmad](#), Anver Aziz and Azher Majid Siddiqui, Structural, Optical and Electrical Properties of Tin Oxide Thin Films for Application as a Wide Band Gap Semiconductor, *Advanced Materials and Radiation Physics (AMRP-2015) AIP Conf. Proc.* **1675**, 030039-1–030039-6; doi: 10.1063/1.4929255 © 2015.
19. [Shabir Ahmad](#), Riti Sethi, Mohd. Nasir, K. Asokan, and M. Zulfequar, Effect of 50MeV Li^{3+} ion irradiation on structural, optical and electrical properties of amorphous $Se_{95}Zn_5$ thin films, *Advanced Materials and Radiation Physics (AMRP-2015)AIP Conf. Proc.* **1675**, 030027-1–030027-11; doi: 10.1063/1.4929243© 2015.
20. Mohd. Nasir, [Shabir Ahmad](#), and M. Zulfequar, Investigation of optical and electrical properties of amorphous $Se_{95-x}S_xZn_5$ ($x=0.2, 2, 5$ and 10) thin films, *Advanced Materials and Radiation Physics (AMRP-2015)AIP Conf. Proc.* **1675**, 030028-1–030028-9; DOI: 10.1063/1.4929244© 2015.
21. Shama Islam, Hana Khan, Zubair MSH Khan, [Shabir Ahmad](#), Raja Saifu Rahman, and M. Zulfequar, Novel approach to synthesis and characterization of POT/ZnO nanocomposites, *Condensed Matter and Applied Physics (ICC 2017) AIP Conf. Proc.* **1953**, 130028-1–130028-5, <https://doi.org/10.1063/1.5033172>, Published by AIP Publishing. 978-0-7354-1648-2.
22. Mohsin Ganaie, [Shabir Ahmad](#), Shama Islam, and M. Zulfequar Dc, Ac Conductivity and Dielectric Analysis of Se-Te Alloy, *Advanced Science Letters*, **20**, (2014) 1360-1363.
23. [Shabir Ahmad](#), Mohsin Ganaie, Shama Islam, Mohd. Shahid Khan, K. Asokan, and M. Zulfequar, Effect of Gamma Irradiation on Optical Parameters of Thermally Evaporated Thin Films of $Cd_5Se_{89}Zn_6$, *Advanced Science Letters*, **20**, (2014) 1430-1432.
24. Shama Islam, Mohsin Ganaie, [Shabir Ahmad](#), Azher M. Siddiqui, and M. Zulfequar Zinc Oxide (ZnO) Doped Poly(o-toluidine): Synthesis and Characterization, *Adv. Sci. Lett.* **20**,(2014) 1710-1714.

25. Mohsin Ganaie, [Shabir Ahmad](#), Shama Islam M. Zulfequar, *Electrical Conductivity and Dielectric Properties of $Se_{100-x}Te_x$ Alloy*, **International Journal of Physics and Astronomy**, Vol. 2, No. 2, (2014) 51-64.
26. [Shabir Ahmad](#), Mohsin Ganaie, Shama Islam, Mohd. Shahid Khan, K. Asokan, M. Zulfequar *Study of Effect of Solar Light Irradiation on Structural, Optical and Electrical Properties of CdSe Thin Films*, **International Journal of Physics and Astronomy**, Vol. 2, No. 2, (2014) 79-92.
27. Shama Islam, Mohsin Ganaie, [Shabir Ahmad](#), Azher M. Siddiqui, M. Zulfequar *Dopant Effect and Characterization of Poly (O-Toluidine)/Vanadium Pentoxide Composites Prepared by in Situ Polymerization Process*, **International Journal of Physics and Astronomy**, Vol. 2, No. 2, (2014) 105-122.
28. Muzzammil Ahmad Bhat, R.K. Gautam, [Shabir Ahmad](#), *Theory of Mechanoluminescence of coloured alkali halide crystals using pressure steps*, **International Journal of Advance Research in Science and Engineering** 7, 2 (2018) 800-806.
29. [Shabir Ahmad](#), Muzzammil Ahmad Bhat, Mohd. Nasir, Hana Khan, Javid Ali, K. Asokan, M. Zulfequar, *Investigation of Electrical Properties of CNT- $Se_{90}S_5Zn_5$ bi-layer Structure Mixed by Swift Heavy ions Irradiation*. **International Journal of Advance Research in Science and Engineering** 7, 2 (2018) 807-811.

Published Books

1. *Sun: it's Structure and Phenomenon*, Lambert Academic Publication, ISBN: 978-613-4-99965-6.
2. *Material Science Techniques*, Lambert Academic Publication, ISBN: 978-613-9-81448-0

Book Chapters

1. [Shabir Ahmad](#), Rayees Ahmad Zargar, Imtiyaz Rasool, *CIGS THIN FILMS FOR SOLAR CELL APPLICATIONS Contemporary Research in Sciences and Humanities* ISBN: 978-81-931247-4-1, Bhumi Publishing, India (2017).
2. Rayees Ahmad Zargar, Imtiyaz Rasool Parrey and [Shabir Ahmad](#), *TRANSPARENT CONDUCTIVE OXIDE THICK FILMS FOR PHOTOVOLTAIC CELL Contemporary Research in Sciences and Humanities* ISBN: 978-81-931247-4-1, Bhumi Publishing, India (2017).
3. Imtiyaz Rasool Parrey, Rayees Ahmad Zargar and [Shabir Ahmad](#), *MEDICINAL APPLICATIONS OF NANOTECHNOLOGY, Contemporary Research in Sciences and Humanities* ISBN: 978-81-931247-4-1, Bhumi Publishing, India (2017).
4. [Shabir Ahmad](#), Muzzammil Ahmad Bhat, Mohd. Nasir, K. Asokan, M. Zulfequar, *Investigation of Physical Properties of CNT-Se bi-layer system Mixed by 70 MeV Ni^{7+} ions and by Pulsed Laser Irradiation*, www.conferenceworld.in, ISBN: 978-93-86171-87-0, A.R. Research Publication, RISTE-2017, 97-104.

5. Mohd. Nasir, [Shabir Ahamad](#), Muzzammil Ahmad Bhat and M. Zulfequar, Study of Sulfur doped kinetics parameters on $Se_{95-x}S_xZn_5$ for Chalcogenide Nanostructures, www.conferenceworld.in, ISBN: 978-93-86171-87-0, A.R. Research Publication, RISTE-2017, 105-116.
6. Muzzammil Ahmad Bhat, [Shabir Ahmad](#), Mohd. Nasir, Structural investigations of bulk undoped and Ni doped ZnO samples: Role of NiO Secondary phase, www.conferenceworld.in, ISBN: 978-93-86171-87-0, A.R. Research Publication, RISTE-2017, 168-172.
7. [Shabir Ahmad](#), Mohsin Ganaie, Nasir, Neetu, Shahid Khan M. Zulfequar, "Study of Optical Parameters of the Thin Films of $Se_{100-x}Hg_x$ with Laser Irradiation".
Springer Cham Heidelberg New York Dordrecht London, Springer International Publishing Switzerland 2014, ISBN 978-3-319-03002-9 (eBook).
8. Mohsin Ganaie, [Shabir Kumar](#), Adam A. Bahishti, M. Zulfequar, "Dc conductivity and High Field Behavior of $Se_{100-x}Te_x$ Alloy", **Springer Cham Heidelberg New York Dordrecht London, Springer International Publishing Switzerland 2014, ISBN 978-3-319-03002-9 (eBook).**

Workshops and Conferences attended

1. 4th National Conference on Advanced Materials and Radiation Physics (AMRP-2015), Sant Longowal Institute of Engineering and Technology, Longowal, Distt. Sangrur-148106 (Punjab) ([Poster Presentation](#)).
2. Third International Symposium on Semiconductor Materials and Devices (ISSMD-3), 2-5 Feb-2015, Anna University, Chennai-600025, Tamil Nadu-India ([Poster Presentation](#)).
3. International Conference on Swift Heavy Ions in Materials Engineering and Characterization (SHIMEC-2014), Inter-University Accelerator Center New Delhi-110067. ([Poster Presentation](#))
4. International Conference on Scanning Electron Microscopy, 2014, at Delhi University, North Campus, India.
5. National Conference on Nanotechnology and Renewable Energy, 2013, at Jamia Millia Islamia, New Delhi-110025, India, ([Poster Presentation](#))
6. 17th International Workshop on the Physics of Semiconductor Devices 2013 at Amity University Noida (U.P), ([Poster Presentation](#))
7. National Conference on "Ion Beams in material Research (IBMR 2013) at MNIT Jaipur, India.
8. National Workshop on Physics in the 21st Century 04-06 October, 2017. Abdul Ahad Azad Memorial degree College Bemina, Cluster University Srinagar (J&K) ([Poster Presentation](#))
9. One Day National Conference on "Recent Innovations in Science, Technology and Engineering" Venue: National Institute of Technology, Srinagar, Jammu and Kashmir, India, Date of Conference (16th December 2017) ([Oral Presentation](#))
10. 3-DAY NATIONAL WORKSHOP ON "TECHNICAL, PAPER WRITING, PATENT DRAFTING AND FILING" Department of Electronics and Communication Engineering Islamic University of Science & Technology, Awantipora, 192122, 12-14th of December 2017 ([Attended](#)).

11. *Workshop on Scientific and Technical Documentation Using LaTeX, IUST Awantipora J & K - Dec 21 & 22, 2017(Attended).*
12. *Springer Nature Author Workshop in Islamic University of Science & Technology, on 15th December 2017 (Attended).*
13. *13th International Conference on Recent Trends in Engineering Applied Science and Management (ICRTESM-18), on January 21th-22th January-2018, Vedant College of Engineering & Technology Bundi, Rajasthan.(Poster Presentation).*
14. *International Conference on Science and Engineering of Materials ICSEM 2018-09-17, Venue: School of Basic Science and Research, Sharda University Greater Noida 201310, India January-6-8, 2018.(Poster Presentation).*

Declaration

I certify that the above information is completely true and correct to the best of my knowledge and belief.

Shabir Ahmad Kumar

