Dr. Aga Shahee || Curriculum Vitae

Assistant Professor, Department of Physics, University of Kashmir, Hazratbal,
Srinagar, Jammu & Kashmir, India-190006
Email ID: dr.agashahee@gmal.com, **Skype ID**: Aga Shahee, **Mobile No**: +91-9149778077,
ORCID-0000-0003-3860-1648 **Webpage**: https://sites.google.com/view/q2m-group

Introduction

With 15 years of experience in the field of strongly correlated electron and quantum materials, I specialize in synthesis, crystal growth, and the exploration of novel structural, electric, and magnetic phases. My research focuses on magneto-structural phase transitions, charge-orbital ordering, magnetoelectric effects, multiferroicity, and quantum magnetism, with the aim of contributing to groundbreaking innovations in this multidisciplinary field.

Research Focus

- My research centers on explore novel phases of multiferroic and quantum materials, employing a combination of synthesis, crystal growth, scattering, spectroscopy, and physical property measurements. This comprehensive approach aims to unravel the intriguing phenomena of structure, (anti)ferromagnetism, charge-orbital order, multiferroicity, and their combinations.
- My research also centers on the design, nanofabrication, and characterization of devices utilizing magnetoelectronic and magnetic materials. I'm dedicated to harnessing the unique properties of these materials, aiming to advance electronic and spin-based applications, enhance memory functionality, and explore opportunities for energy harvesting.

By combining these research efforts, I aim to contribute to a deeper understanding of the fundamental properties of multiferroic and quantum materials, paving the way for transformative technological advancements in the field of materials science.

Education

Ph.D. Physics — **Devi Ahilya Vishwavidyalaya, Indore, India**
Research Avenue: — **UGC DAE Consortium for Scientific Research Indore, India**
Advisors: Dr. Niranjan P. Lalla — 2010-2015
Thesis Title: Crystal structure and phase-transition studies of few perovskite-based manganites and chromates using powder x-ray diffraction and transmission electron microscopy

M.Phil. Physics — **Devi Ahilya Vishwavidyalaya, Indore, India**
Research Avenue: — **UGC DAE Consortium for Scientific Research Indore, India**
Advisors: Dr. Niranjan P. Lalla — 2009-2010
Synopsis Title: Synthesis, structure, and dielectric studies of possible Multiferroic $La_{1-x}Bi_xCrO_3$
Courses: Condensed Matter Physics; Nanomaterials; Vacuum, Thin Film & Cryogenic Techniques; Material Characterization; Numerical Techniques using C^{++} and MATLAB

MSc. Physics — **University of Kashmir, J&K, India**
Prof. Rais Ahmad & University Gold Medals — 2005-2007
Courses: Quantum electrodynamics; Microprocessor, and microcomputer; Nuclear and particle physics; Computational method and programming.

BSc. Non-Medical — **University of Kashmir, J&K, India**
(Eng., Phys., Math., Chem.) — 2002-2005
Courses: Gen. English; Mathematics; Physics; Chemistry.

Research and Academic Positions

Assistant Professor (Physics) — **University of Kashmir, Srinagar (J&K), India**
Project: Exploration of Emergent Phenomena in novel multifunctional materials for spintronic, memory and energy harvesting applications — April 2025-Presnt

Ramanujan Fellow and Coordinator of Frontier Research Institute for Interdisciplinary Sciences (FRIIS) — **Islamic University of Science and Technology (IUST), India**

Project: Exploration of novel phases of multiferroic and quantum materials and devices for spintronic, memory and energy harvesting applications — Oct 2023-April 2025

Ramanujan Fellow — **University of Kashmir, Srinagar (J&K), India**
Project: Exploration of novel phases of 2D vdW multiferroic materials — July 2022-Oct 2023

Research Associate — **Johannes-Gutenberg-Universität Mainz, Germany**
Advisor: Prof. Dr. Mathias Kläui — Dec 2020-July 2022
Project: Nano-Fabrication and characterization of 2D Van der Waals (vdW) spintronics and AFM-antispintonics devices

Brain Korea and IBS Post-Doctoral Fellow — **Seoul National University, South Korea**
Advisor: Prof. Kee Hoon Kim — Nov 2016-Nov. 2020
Project: Crystal growth and physical properties studies of multiferroic and magnetically frustrated quantum materials

Institute Post-Doctoral Fellow — **Indian Institute of Technology Bombay, India**
Advisor: Prof. Avinash V. Mahajan — Sept 2015- Nov 2016
Project: NMR and physical properties studies of magnetically frustrated quantum materials

Graduate researcher — **UGC DAE Consortium for Scientific Research Indore, India**
(CSIR India-Junior/Senior Research Fellowship "JRF/SRF") — Feb 2009- Sept 2015
Advisor: Dr. Niranjan P. Lalla (Scientist-G)
Project: Exploring charge orbital ordering, magnetic field drove structural phase transitions and kinetic arrest in wide bandwidth manganites

Administrative Experience

- **Coordinator** of Frontier Research Institute for Interdisciplinary Sciences (FRIIS), *IUST* — Nov 2023- Mar 2025
- **DPTC Chairman, FRIIS, IUST** — Nov 2023- Mar 2025
- **Advisory Council Member and DPTC member (VC Nominee)** of Centre for Renewable Energy and Sustainable Technologies, IUST

Teaching Experience

i). **Teaching Assistant** — Jan 2016-Nov 2016
Organization: Indian Institute of Technology Bombay, India

ii**). Lecturer Physics** — April 2008- Dec 2009
Organization: Women College, Nawakadal, Srinagar, J&K, India

iii). **Lecturer Physics** — July 2007- Dec 2008
Organization: Govt. Hr. Sec. School, Kuchumuqam, Baramulla, J&K, India

Skills

My skills include expertise in various areas of materials science and engineering, specifically:

Synthesis and Crystal Growth: I am experienced in solid-state and sol-gel synthesis techniques, as well as single crystal growth using flux and chemical vapor transport methods.

Structure and Microstructural Analysis: I have extensive knowledge in the use of advanced characterization techniques such as transmission electron microscopy, powder x-ray diffraction, and powder neutron diffraction at low temperatures and high magnetic fields. I am skilled in performing lattice and spin structural refinements using software tools such as FullProf, JANA, X'Pert HighScore, and Laue diffraction for single crystal alignment.

Magnetic and Electronic Property Measurements: I am proficient in low-temperature measurement techniques such as neutron diffraction, magnetic susceptibility using SQUID and VSM, electric polarization, pyroelectric-current, magnetoelectric current, heat capacity, and electrical transport under extreme conditions using PPMS and 5T/8T/12T superconducting magnets.

2D Device Fabrication: I have expertise in mechanical exfoliation and various dry/wet transfer techniques used to stack van der Waals heterostructures. I am skilled in working in gloveboxes and cleanrooms for nanofabrication, and I have experience with

optical lithography, electron beam lithography (EBL), magnetron sputtering of Au/Cr, and PLD (physical vapour deposition) sputtering of Pt/Pd.

Device Characterization: I am experienced in performing spin transport and 2nd harmonic Hall voltage measurements for spin-orbit torque analysis.

Awards, Fellowships and Honors

➢ State University Research Excellence (SERB - SURE)	May 2023
➢ Ramanujan Fellowship – SERB India	Feb. 2022
➢ Post-Doctoral Fellowship, Johannes Gutenberg-Universität Mainz, Germany	Dec. 2020
➢ Prestigious Brain Korean BK21 Plus Post-Doctoral Fellowship, South Korea	Oct. 2018
➢ Prestigious IBS Post-Doctoral Fellowship, Seoul National University, South Korea	Nov. 2016
➢ Prestigious Institute Post-Doctoral Fellowship, IIT Bombay, India	Sept. 2015
➢ Young Scientists speaker at XXIII Conference on Applied Crystallography (CAC-2015), Poland	July. 2015
➢ Best poster presentation award in 59th DAE Solid State Physics Symposium, India	Dec. 2014
➢ NET- Senior Research Fellowship (SRF) –CSIR India	July. 2011
➢ All India Rank = 51 in Joint Entrance Screening Test (JEST- 2009) Ph.D. Admissions in Physics	Feb. 2009
➢ NET-Junior Research Fellowship (JRF) – CSIR India	Dec. 2008
➢ (NET) – Lectureship (LS) – CSIR-UGC India in the capacity of Physical Sciences	June. 2008
➢ University Gold Medal	July. 2007
➢ Professor Rais Ahmad Gold Medal	July. 2007

Research Grant Received:

SERB - Ramanujan Fellowship Grant	(Budget allotted = 116 lakh)	Feb. 2022
SERB -State University Research Excellence (SURE)	(Budget allotted ~ 24.26 lakh)	May 2023

Mentorship

• **Masarat Fayaz Bhat** (Masters Student from Department of Nanotechnology, UoK)	Dec. 2022 to April 2023
• **Lone Fawad Majeed** (Masters Student from Department of Nanotechnology, UoK)	Dec. 2022 to April 2023
• **Syed Ilyas Yousef, Rayees Ahamd Dar, Mohd Ali, Mubashir Nazir** (Masters Students from Department of Physics, UoK)	July. 2023 to Dec. 2023
• **Syeda Masooma Razvi** (Project Associate-I, FRIIS, IUST)	Mar. 2024 to present

Professional Membership

- Life member of Indian Physical Society (**IPS**)
- Life member of Neutron Scattering Society of India (**NSSI**)
- Core member of JK Scientist and Lead Coordinator of Physics, Nanotechnology, Materials Science (**PNM**) Club- JK Scientist Spectrum (**JKS**).
- Alumina of Following: **DAVV Indore**, India; **IIT Bombay**, India; Kashmir **University,** India; **UGC-DAE CSR Indore**, India; **Seoul National University**, South Korea; **Johannes Gutenberg-University** of Mainz, Germany.

Editorial and Review Roles

Editorial Board Member:

- *Scientific Reports*

Reviewer:

* *ACS Applied Electronic Materials*
* *APL Advance*
* *Ceramics International.*
* *Arabian Journal of Chemistry, etc.*
* *Applied Physics Letters*
* *Journal of Alloys and Compounds*
* *Journal of Physics and Chemistry of Solids*

Quantitative parameters

International Journal Publications	**= 39**
International AIP Conference Proceeding	**= 11**
Impact Factor	**> 200**
Citations	**= 768**
H-index	**= 15**
i10-index	**=22**
Talk	**= 14**
Oral	**= 10**
Poster	**= 19**
ResearchGate Research Interest Score	**>1168**

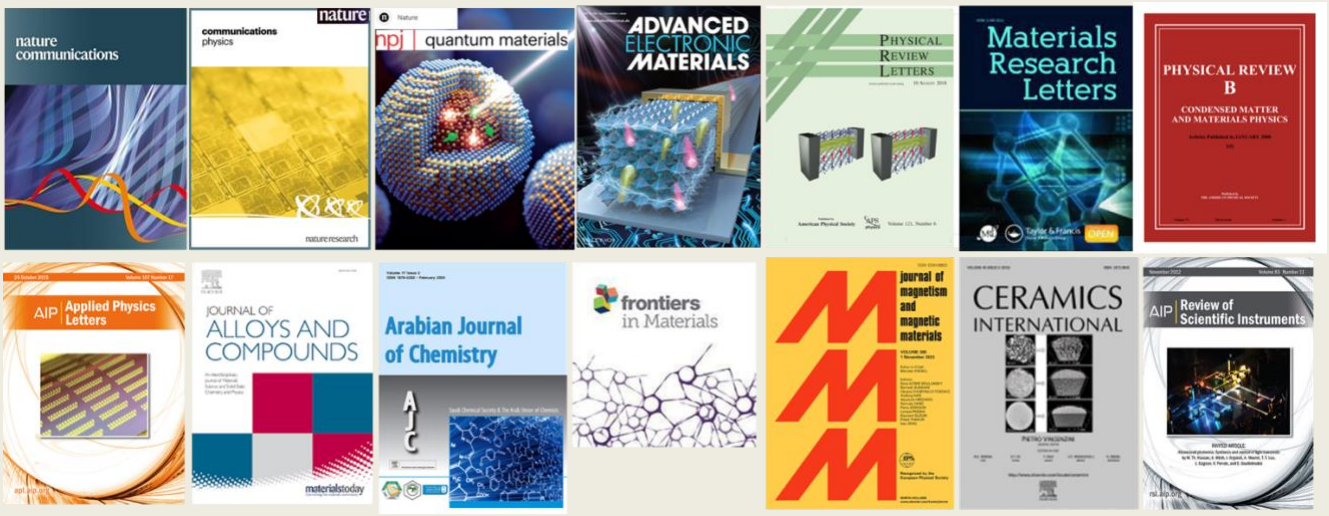
(11) AIP Conference Proceedings	(8) Journal of Alloys and Compounds
(5) Physical Review B	(2) Journal of Magnetism and Magnetic Materials
(2) Ceramics International	(2) Physica Status Solidi (B)
(2) Advanced Electronic Materials	(1) Solid State Communications
(1) Journal of Physics: Condensed Matter	(1) Journal of Applied Physics
(1) Ferroelectrics Letters Section	(1) Npj Quantum Materials
(1) Applied Physics Letters	(1) Review of Scientific Instruments
(1) Materials Research Express	(1) Physica B: Condensed Matter
(1) Materials Letters	(1) Arabian Journal of Chemistry
(1) Materials Technology	(1) Physical Review Letters
(1) Materials Research Letters	(1) Communications Physics

Few Selected Talk and Presentations

1. Invited Talk Title **"*Experimental Discovery of the Liner Magnetoelectric Effect in the Topological Magnon Antiferromagnet Cu_3TeO_6*"** in International Conference on Energy Materials and Rechargeable Batteries (ICEMRB-2023)*"* is being organized by Manav Rachna University Faridabad, India held on 19-22 December 2023**.**
2. Invited Talk Title "***Discovery of Magnetoelectric Multiferroicity in Two-Dimensional van der Waals $CuCrP_2S_6$***" in **I**nternational Multidisciplinary Conference on Recent Innovations in Science, Engineering, Management and Humanities (RISEMH 2023)" organized by J S University, Shikohabad, Firozabad, India on 16-17 December 2023**.**
3. Invited Talk Title **"*Unveiling Extraordinary Magnetoelectric Coupling in Room Temperature Z-Type Hexaferrite Films***" in International Conference on Nanotechnology for Better Living" is being organized by NIT Srinagar (J&K), India held on 25-29 May 2023**.**
4. Invited Talk Title **"*Towards Spin-Induced Ferroelectricity in two-dimensional van der Waals materials***" in one-day event on "X-ray Diffraction and Electron Microscopy Organized by UGC-DAE Consortium for Scientific Research (UGC-DAE CSR), Indore held on 24 March 2023**.**
5. Invited Talk Title "***Anomalously large magnetoelectric coupling in Co_2Z hexaferrite Films***" in National Conference on Physics and Chemistry of Materials **(**NCPCM-2023), organized by Department of Physics, Govt. Holkar Science College, Indore from 16-18 March 2023.
6. Invited Talk Title **"*Magneto-electric Multiferroic: New quantum materials beyond the semiconductor era***" Organized by Department of Physics, Central University Of Kashmir, J&K, India**,** held from 28th June 2020.
7. Invited Talk Title "***Basics of X-Ray Powder Diffraction: A Tool for Crystal Structure Analysis***" in Virtual International Conference on Material Science (Device Fabrication) Organized by Department of Physics, Shri Neelkantheshwar Government Postgraduate College, Khandwa, MP, India, held from 5th – 6th June 2020.
8. Invited SFB/TRR **(**Spin + X) Colloquium–Seminar**,** Talk title **"*Doping tunable multiferroicity in $PbCu_3TeO_7$ and magneto-electric coupling in Van der Waal $CuCrP_2S_6$***" at Johannes Gutenberg-Universität Mainz, Mainz, Germany, held on 12 March-2020.
9. Oral **"*Zn^{2+} doping tunable multiferroicity in S = ½ kagome staircase $PbCu_3TeO_7$*"** at 11th International Conference on Magnetic and Superconducting Materials (MSM19), 17-24 August 2019 held at Seoul National University, South Korea.
10. Invited Talk Title "***Magnetically driven ferroelectric order in S = ½ kagome staircase compound $PbCu_3TeO_7$***" held on 26 July 2019 at Department of Physics, Jamia Millia Islamia, New Delhi, India, held on 02nd August 2019.
11. Invited Talk Title "***Ferroelectric polarization driven magnetically in S = ½ kagome staircase compound $PbCu_3TeO_7$***" held on 02 August 2019 at Department of Physics, National Institute of Technology Srinagar, J&K, India, held on 29th July-2019.
12. Oral "***Tuning multiferroicity towards zero magnetic field in Zn substituted $Pb(Cu_{1-x}Zn_x)_3TeO_7$***"The (Korean Physical Society) KPS Fall Meeting 2018, 24-26 Oct-2018, held at Changwon Convention Center (CECO), Changwon, South Korea.
13. Seminar Title "***Structural phase-transitions and its correlation with magnetic and transport properties of few wideband manganites***" at Institute of Materials Physics, University of Göttingen, Germany, held on 25 Sept-2015.
14. Oral **"*Tuning the ground state of $La_{0.2}Sr_{0.8}MnO_{3-\delta}$ between charge-ordered cubic and JT-distorted tetragonal phase*"** Young Scientific speaker at XXIII Conference on Applied Crystallography (CAC-2015), held during 20-24 Sept-2015, at Czarny Potok, Krynica Zdrój, Poland.
15. Séminaire MCMF, Title "***Structural phase-transitions and correlated physical properties of few wideband manganites***" at Institut Néel, CNRS-Grenoble, France on 15 Sept-2015.

16. Seminar Title "***Structural phase-transitions and correlated physical properties of few wideband manganites***" at Indian Institute of Technology Kanpur, India on 31 August 2015.
17. Seminar Title "***Structural phase-transitions and correlated physical properties of few wideband manganites***" at Indian Institute of Technology Bombay, India on 24 August 2015.
18. Talk Title "***Powder X-Ray Diffraction: A Tool for Crystal Structure Analysis***", Workshop on Surface Science (WSS-14), held during 20-24 Mar-2014 at Christian Eminent College-Indore (M.P), India".
19. **Oral "*Direct visualization of Glass-like kinetic arrest of first-order structural phase transition in ferromagnetic $La_xMnO_{3+\partial}$ (x=1, 0.9, 0.83)*"**28th M. P. Young Scientist Congress, held during 24 Feb.- 01 Mar. 2013 at Vigyan Bhawan, Bhopal (India).
20. Oral "***Glass-like kinetic arrest of first-order structural phase transition in ferromagnetic $LaMnO_{3.15}$***" The 30th IPS Colloquium for Young Physicists (2012), held during 16-17 Aug-2012, at Saha Institute of Nuclear Physics (SINP), Kolkata, India.
21. Oral "***Evidence of Magneto-elastic (ME) coupling across the Metal-Insulator (M-I) Transition in $La_{0.833}MnO_{3-\delta}$***" International Conference on Frontiers in Nano-Science, Nanotechnology and their Applications 'NanoSciTech-2012' held during 15– 18 Feb-2012, at Punjab University, Chandigarh, Punjab, India.
22. Oral "***Electron-beam induced phase transition from R-3c to Pnma in oxygen excess $LaMnO_{3+\delta}$***" International Conference on Recent Trends in Physics 'ICRTP2012' held during 4–5 Feb-2012, at Devi Ahilya University, Indore (M. P.) India.

Publications in International Journals: (available on Google Scholar and ResearchGate**)**



1. *Harnessing Van der Waals CrPS4 and Surface Oxides for Nonmonotonic Preset Field Induced Exchange Bias in Fe_3GeTe_2*.A Kumar, T Scholz, Z Lin, **A Shahee**, S Fu, T Denneulin, J Vas, A Kovács, RE Dunin-Borkowski, HI Wang, J Yang, BV Lotsch, U Nowak, M Kläui, ACS Nano 18 (11), 8383–8391 92024 (2024). IF 15.8
2. *Enhanced thermally-activated skyrmion diffusion with tunable effective gyrotropic force*, T Dohi, M Weißenhofer, N Kerber, F Kammerbauer, Y Ge, K Raab, J Zázvorka, M-A Syskaki, **A Shahee,** M Ruhwedel, T Böttcher, P Pirro, G Jakob, U Nowak, M Kläui, Nature Communications 14 (1), 5424 (2023). **IF: 17.69**
3. *Observation of linear magnetoelectric effect in a Dirac magnon antiferromagnet Cu_3TeO_6*, **A. Shahee**, K. Yoo, B. Koteswararao, N. V. T-Oganessian, K. H. Kim, Front.Mater.10:1179651 (2023). **IF: 3.985**
4. *Observation of magnetic-field-induced ferroelectricity in a compound $CaFe_3O(PO_4)_3$*, U. K. Voma, **A. Shahee**, K-T Kim, J. Lee, K. Boya, S. Bhowal, K. H. Kim, B. Koteswararao, J. App. Phys. 133, 164105 (2023) . **IF: 2.877**
5. *Strong bulk spin-orbit torques quantified in the van der Waals ferromagnet Fe_3GeTe_2***,** F**.** Martin, K**.** Lee, M**.** Schmitt, A**.** Liedtke, **A. Shahee**, H**.** T**.** Simensen, T**.** Scholz, T**.** G. Saunderson, D**.** Go, M**.** Gradhand, Y**.** Mokrousov, T**.** Denneulin, A**.** Kovács, B**.** Lotsch, A**.** Brataas, K.Mathias**,** Materials Research Letters, 11, 84-89 (2023). **IF: 8.516**
6. *Skyrmionic Spin Structures in Layered Fe_5GeTe_2 Up To Room Temperature*, M. Schmitt, T. Denneulin, A. Kovács, T. G. Saunderson, P. Rüßmann, **A. Shahee**, T. Scholz, A. Tavabi, M. Gradhand, P. Mavropoulos, B. Lotsch, Y. Mokrousov, S. Blügel, M. Kläui, Communications Physics – Nature (2022) accepted**. IF: 6.50**
7. *Observation of anomalously large magnetoelectric coupling in the hexagonal Z-type ferrite films***,** KW Shin, M Soroka, **A Shahee**, KH Kim, J Buršík, R Kužel, M Vronka, M. H. Aguirre, Advanced Electronic Materials 2101294, 1-9 (2022). **IF: 7.633**
8. *Observation of Spin-Induced Ferroelectricity in a Layered van der Waals Antiferromagnet $CuCrP_2S_6$*, CB Park, **A Shahee**, KT Kim, DR Patil, SA Guda, N Ter-Oganessian, K. H. Kim, Advanced Electronic Materials 2101072, 1-9 (2022). **IF: 7.633**

9. *Explore the charge transfer and d-d excitation in perovskite manganite using 2p3d resonant inelastic X-ray scattering,* RN Aljawfi, M Abu-Samak, S Kumar, **A Shahee**, M A.Swillam, Journal of Alloys and Compounds 904, 164020 (2022). **IF: 6.371**
10. *Effect on Optical and Structural Parameters in Heavy Ca Doped ZnO Nanostructures*, Kamakhya P. Misra, A. Kumawat, **A. Shahee** and S. Chattopadhyay**,** Materials Technology: Advanced Performance Materials, 36, 529-540 (2021). **IF: 3.297**
11. *Gapless Quantum Spin Liquid in the Triangular System $Sr_3CuSb_2O_9$,* S. Kundu, **A. Shahee**, A. Chakraborty, K. M. Ranjith, B. Koo, J. Sichelschmidt, Mark T. F. Telling, P. K. Biswas, M. Baenitz, I. Dasgupta, S. Pujari, and A. V. Mahajan, Phys. Rev. Lett. 125, 267202 (2020). **IF: 9.161**
12. *Spin- ½ chain compound $Ba_2Cu_2Te_2P_2O_{13}$: Magnetization, specific heat, and local-probe NMR,* V. Kumar, **A. Shahee,** S. Kundu, M. Baenitz, and A. V. Mahajan, Phys. Rev. B 102, 104419. **IF: 3.908**
13. *Contrasting temperature dependence of band gap in $CH_3NH_3PbX_3$ (X=I, Br, Cl): Insight from lattice dilation and electron-phonon coupling*, R. Saxena, J. Kangsabanik; A. Kumar; **A. Shahee,** S. Singh, N. Jain, S. Ghorui, V. Kumar, A. V. Mahajan, A. Alam, D. Kabra, Phys. Rev. B 102, 081201I (2020) **IF: 3.908**
14. *Impact of annealing on the structural and optical properties of ZnO nanoparticles and tracing the formation of clusters via DFT calculation***,** R**.** N**.** Aljawfi, M**.** J**.** Alam, F**.** Rahman, S**.** Ahmad, **A. Shahee**, S**.** Kumar**,** Arabian J. Chemistry, 13, 2207-2218 (2020). **IF: 5.165**
15. *Dislocations and particle size governed band gap and ferromagnetic ordering in Ni doped ZnO nanoparticles synthesized via co-precipitation*, S. Chattopadhyay, A. Agarwala, **A. Shahee**, S**.** Jain, N**.** Halder, A**.** Rao, P. D. Babu, M**.** Saran, A**.** K**.** Mukhopadhyay, Ceramics International, 45, 23341-23354 (2019). **IF: 4.527**
16. *The spin-1/2 coupled tetramer system $Ba(TiO)Cu_4(PO_4)_4$ probed by magnetization, specific heat, and P-NMR,* V Kumar, **A Shahee,** S Kundu, M Baenitz, AV Mahajan, J. Mag. Mag. Materials 492, 165600 (2019) **IF: 2.993**
17. *Structural, thermodynamic, and local probe investigations of the honeycomb material $Ag_3LiMn_2O_6$,* R. Kumar, Tusharkanti Dey, P. M. Ette, K. Ramesha, A**.** Chakraborty, I. Dasgupta, R. Eremina, S**.** Tóth, **A. Shahee**, S. Kundu, M. Prinz-Zwick, A. A. Gippius, H. A. Krug von Nidda, N. Büttgen, P. Gegenwart, and A. V. Mahajan, Phys. Rev. B 99, 144429 (2019). **IF: 3.908**
18. *Unconventional magnetism in the $4d^4$ based (S=1) honeycomb system $Ag_3LiRu_2O_6$,* R. Kumar, T. Dey, P. M. Ette, K. Ramesha, A. Chakraborty, I. Dasgupta, J. C. Orain, C. Baines, S. Toth, **A. Shahee**, S. Kundu, M. Prinz-Zwick, A. A. Gippius, N. Buttgen, P. Gegenwart, A. V. Mahajan, Phys. Rev. B 99, 054417 (2019) **IF: 3.908**
19. *Charge orbital and spin ordering transitions in $La_{1-x}Sr_xMnO_{3+\delta}$ (x = 0.67 & 0.71),* **A. Shahee**, S. Kaushik and N. P. Lalla, J. Alloy. Compd., **782**, 277-287 (2019). **IF: 6.371**
20. *Magnetic field-induced ferroelectricity in S = ½ kagome staircase compound $PbCu_3TeO_7$,* K. Yoo, B. Koteswararao, J. Kang, **A. Shahee,** W. Nam, F. Balakirev, V. S. Zapf, N. Harrison, A. Guda, N. Ter-Oganessian and K. H. Kim, Nature-npj Quantum Materials **3**, 45 (2018). **IF: 7.032**
21. *Nano scale phase coexistence and charge-ordering with $3d_{x^2-y^2}$ orbital-ordering in $La_{0.25}Sr_{0.75}MnO_{3.01}$,* **A. Shahee**, NP Lalla, J. Alloy. Compd., **714**, 79-88 (2017). **IF: 6.371**
22. *Infield X-ray diffraction studies of field and temperature driven structural phase transition in $Nd_{0.49}Sr_{0.51}MnO_{3+\delta}$,* **A Shahee**, S Sharma, K Singh, NP Lalla, J. Mag. Mag. Materials **434**, 174-180 (2017). **IF: 2.993**
23. *Studies on magnetic field and temperature driven magneto-structural phase transition in $La_{0.5}Sr_{0.5}MnO_{3+\delta}$,* **A Shahee**, S Sharma, K Singh, NP Lalla, J. Alloy. Compd.,**708**, 734-742 (2017). **IF: 6.371**
24. *In-field X-ray and neutron diffraction studies of re-entrant charge-ordering and field induced metastability in $La_{0.175}Pr_{0.45}Ca_{0.375}MnO_{3-\delta}$,* S Sharma, **A Shahee**, P Yadav, I da Silva, NP Lalla, J. Appl. Phys. **122** (17), 175902 (2017). **IF: 2.546**
25. *Charge ordering in B-site Mo doped $Pr_{0.20}Sr_{0.80}Mn_{1-x}Mo_xO_{3-\delta}$,* S Sharma, **A Shahee**, P Yadav, NP Lalla, J. Alloy. Compd., **722**, 878-887 (2017). **IF: 6.371**
26. *Magnetocaloric effect and magnetic properties of the isovalent Sr^{2+} substituted Ba_2FeMoO_6 double perovskite*, I Hussain, MS Anwar, SN Khan, **A. Shahee**, ZU Rehman, BH Koo, Ceram. Int., **43**, 10080-10088 (2017). **IF: 4.527**
27. *Complex dielectric and impedance behavior of magnetoelectric Fe_2TiO_5,* S. Sharma, T. Basu, **A. Shahee,** K. Singh, N. P. Lalla, E. V. Sampathkumara, J. Alloy. Compd., 663, 289–294 (2016)**. IF: 6.371**
28. *Structural, electronic and magnetic properties of $Sm_{0.55}Sr_{0.45-x}Ag_xMnO_3$ ($0.00 \leq x \leq 0.10$) system*, M. A. Bhat, K. Devendra, **Aga Shahee,** N. K. Gaur**,** J. Alloy. Compd., *661*, 216-220 (2016)**. IF: 6.371**
29. *Low-temperature high magnetic field powder x-ray diffraction setup for field-induced structural phase transition studies from 2 to 300 K and at 0 to 8-T field*, **A Shahee**, S Sharma, D Kumar, P Yadav, P Bhardwaj, N Ghodke, K Singh, NP Lalla, P Chaddah, Rev. Sci. Instrum. **87** (10), 105110 (2016). **IF: 1.587**

30. *Comment on "Quantum paraelectric glass state in $SrCu_3Ti_4O_{12}$"* S. Sharma, **A. Shahee** and N. P. Lalla, Appl. Phys. Lett. **106**, 026101 (2015)**. IF: 3.791**
31. *Strong charge ordering above room temperature in B-site disordered electron-doped manganite $SrMn_{0.875}Mo_{0.125}O_3$,* **A. Shahee,** and N. P. Lalla**,** Mater. Res. Express **2**, 046106 (2015)**. IF: 1.618**
32. *Evidence of ferromagnetic short-range correlations in cubic $La_{1-x}Sr_xMnO_{3-\delta}$ (x=0.80, 0.85) above antiferromagnetic ordering*, **Aga Shahee,** Kiran Singh, R. J. Choudhary and N. P. Lalla, Physica status solidi (b) **1-7** 252, 1832–1838 (2015)**. IF: 1.710**
33. *Multiglass properties and magnetoelectric coupling in uniaxial anisotropic spin cluster-glass Fe_2TiO_5*, S. Sharma, T. Basu, **A. Shahee,** K. Singh, N. P. Lalla and E. V. Sampathkumaran, Phys. Rev. B **90**, 144426 (2014)**. IF: 3.908**
34. *Oxygen deficiency induced suppression of JT-distortion and stabilization of charge ordering in $La_{0.2}Sr_{0.8}MnO_{3-\delta}$,* **A. Shahee,** R. J. Choudhary**,** R. Rawat**,** N. P. Lalla**,** Physica status solidi (b), **251**, 965–973 (2014)**. IF: 1.710**
35. *Effect of oxygen off-stoichiometry on coupled structural and magnetic phase-transitions in $La_{0.15}Sr_{0.85}MnO_{3-\delta}$ (δ=0.02,0.14),* **A. Shahee,** R. J. Chaudhari**,** R. Rawat**,** A. M. Awasthi**,** N. P. Lalla**,** Solid State Commun., **177**, 84 (2014)**. IF: 1.804**
36. *Direct visualization of cubic to tetragonal phase transition in $La_{0.2}Sr_{0.8}MnO_{3-\delta}$ using transmission electron microscopy,* **A. Shahee,** N. P. Lalla, Physica B: Cond. Matt. **448**, 290-296 (2014)**. IF: 2.436**
37. *Kinetic arrest of the first-order R-3c to Pbnm phase transition in supercooled $La_xMnO_{3+\delta}$ (x=1 and 0.9),* **A. Shahee,** D. Kumar**,** C. Shekhar**,** N. P. Lalla**,** J P hys.: Cond. Matt. **24**, 225405 (2012)**. IF: 2.333**
38. *Lattice Expansion in ZnSe Quantum Dots*, S. Chattopadhyay, N. V. Kulkarni, Kaushik Choudhury, R. Prasad, **A. Shahee,** B. N. Raja Sekhar, P. Sen, Materials Lett., **65**, 1625-27 (2011)**. IF: 3.423**
39. *Low Cost Ferroelectric Loop Study Set up With New and Simple Compensation Circuit: Operated at Variable Frequencies*, C. S. Das, A. Majumdar**, A. Shahee,** N. P. Lalla, T Shripathi, R. Hippler, Ferroelectrics Letters, **38**, 78–86 (2011)**. IF: 0.860**

AIP Conference Proceeding:

40. *Geometrical frustration in a new S= ½ distorted check-board lattice $PbCuTeO_5$***,** SP Chilakalapudi, **A. Shahee**, AV Mahajan, S Srinath, B Koteswararao**,** AIP Conf. Proc. 1832 (1), 130032 (2017).
41. *Low Temperature Structural and Transport Studies of $La_{0.175}Pr_{0.45}Ca_{0.375}MnO_{3-d}$,* S. Sharma, **A. Shahee,** K. Singh, N. P. Lalla. AIP Conf. Proc. 1731, 030006 (2016).
42. *Development of Low Temperature and High Magnetic Field X-Ray Diffraction Facility*, **A. Shahee,** S. Sharma, K. Singh, N. P. Lalla and P. Chaddah, 59th DAE Solid State Physics Symposium (DAE-SSPS-2014), AIP Conf. Proc. 1665, 060004 (2015)**.**
43. *Oxygen a Key Parameter to Tune Structural Phase Diagram of $La_{0.2}Sr_{0.8}MnO_{3-\delta}$,* **A. Shahee** and N. P. Lalla, 59th DAE Solid State Physics Symposium (DAE-SSPS-2014), AIP Conf. Proc. 1665, 030005 (2015)**.**
44. *Structural and Electronic Transport Studies of Self-doped $Pr_{1-x}MnO_{3\pm\delta}$ Manganites*, **A. Shahee,** N. P. Lalla, AIP Conf. Proc. 1591 , 1510 (2014)**.**
45. *Structural and In-Field Dielectric Studies Across the Anti-ferroelectric Transition in $Sr_{1-x}Ca_xTiO_3$,* S. Sharma**, A. Shahee,** N. P. Lalla**,** AIP Conf. Proc. 1591 , 42 (2014)**.**
46. *Temperature Dependent Structural studies of Multiferroic $La_{0.7}Bi_{0.3}CrO_3$ Perovskites*, **A. Shahee,** N. P. Lalla, AIP Conf. Proc. 1512, 60 (2013)**.**
47. *Occurrence of Magneto-elastic coupling across the Metal-Insulator Transition in $LaMnO_{3\pm\delta}$,* **A. Shahee,** Dhirendra Kumar**,** N. P. Lalla**,** AIP Conf. Proc. 1447, 1113 (2012)**.**
48. *Anomalous Field-Induced Magnetoresistance Behavior in $Pr_{0.5}Sr_{0.5}MnO_3$ at Low Temperatures*, D. Kumar**, A. Shahee,** R. Rawat**,** N. P. Lalla**,** AIP Conf. Proc. 1447, 83 (2012)**.**
49. *Multiferroic Studies on $La_{0.7}Bi_{0.3}CrO_3$ Perovskite*, **A. Shahee,** D. Kumar**,** N. P. Lalla**,** AIP Conf. Proc. 1349, 1239 (2011)**.**
50. *Structural studies on Multiferroic $La_{1-x}Bi_xCrO_3$ Perovskites*, **A. Shahee**, D. Kumar, N. P. Lalla, AIP Conf. Proc. 1349, 1243 (2011).

Conference booklets

1. *Observation of magnetic field induced ferroelectricity in the poly-and single crystals of $I_3O(PO_4)_3$***,** K-T. Kim, **A. Shahee**, J-W. Lee, V. U. Kumar, B K. Rao, K. H. Kim**,** 한국자기학회 학술연구발표회 논문개요집**, 30,** 56-56 (2020)
2. *Site preferential Zn2+ doping effects on the multiferroicity of S = ½ kagome staircase $PbCu_3TeO_7$,* **A. Shahee**, C. B. Park, N. Ter-Oganessian, and K. H. Kim, 2019 Hsinchu Oxide Forum: The 11th APCTP Workshop on Multiferroics, Taiwan (2019)

3. *Neutron and X-ray Diffraction Studies on B-site Substituted Electron-Doped Manganite $SrMn_{0.85}Mo_{0.15}O_3$,* **A. Shahee**, K. Singh, E. Suard, N. P. Lalla and C. Simon, APCTP-KIAS Quantum Materials Symposium (QMS) 2018, held at Muju Deogyusan Resort, Korea, 24 Feb. ~ 01 Mar-2018.
4. *Development of low temperature and high magnetic field Powder X-ray diffraction facility for field-driven structural phase transition studies*, **A. Shahee**, S. Sharma, P. Yadav, P. Bhardwaj, N. P. Lalla1, and P. Chaddah, APCTP-Quantum Materials Symposium 2017 in conjunction with 17th Korea-Taiwan-Japan Workshop on SCES & APW, held at Yongpyong resort (Dragon Valley Hotel), from 19-24 Feb-2017.
5. *Neutron diffraction study of spin, charge and orbital ordering in $La_{0.33}Sr_{0.67}MnO_3$,* **A. Shahee,** S. D. Kaushik, N. P. Lalla & V. Siruguri, Conf. on Neutron Scattering, 10-12 Feb-2014 at the IISER-Pune, Pune, India**.**
6. *Oxygen-vacancy effect on structural, magnetic, and electronic properties in $La_{0.15}Sr_{0.85}MnO_{3-\delta}$,* **A. Shahee** & N. P. Lalla**,** Research Scholars Workshop on Phys. Of Materials', 23-24 Dec-2013 at UGC-DAE CSR Indore.
7. *Structural and electrical Properties of Ag doped $Pr_{0.67}Sr_{0.33}MnO_3$,* M. A. Bhat, **A. Shahee,** R. K. Thakur, B. Singh, N. Kumar & N.K. Gaur, International Conf. on Materials Processing and Characterization "ICMPC2012", 08 – 10 Mar-2012 at Gokaraju Rangaraju Inst. Of Eng. & Tech., Hyderabad, India.
8. *Evidence of Magneto-elastic (ME) coupling across the Metal-Insulator (M-I) Transition in $La_{0.833}MnO_{3-\delta}$,* **A. Shahee**, D. Kumar & N. P. Lalla, International Conf. on Frontiers in Nano-Science, Nanotechnology and their Applications "NanoSciTech-2012", 15 – 18 Feb-2012 at Punjab University, Chandigarh, India.
9. *Electron-beam induced phase transition from R-3c to Pnma in oxygen excess $LaMnO_{3+\delta}$,* **A. Shahee,** D. Kumar, N. P. Lalla, International Conf. on Recent Trends in Physics "ICRTP-2012", 4 – 5 Feb-2012 School of Physics, DAVV-Indore.
10. *A simple and low cost Sawyer-Tower ferro-electric loop tracer with variable frequency and compensation circuit,* C. S. Das, **A. Shahee,** N. P. Lalla, T. Shripathi, Proceedings of the 54th DAE Solid State Phys. Symposium, 14-18 Dec-2009, at the Maharaja Sayajirao University of Baroda, Vadodara, India.

Preprint and unreview Publications

- Fluctuation-mediated spin-orbit torque enhancement in the noncollinear antiferromagnet $Mn_3Ni_{0.35}Cu_{0.65}N$, A. Bose, T. G Saunderson, A. Shahee, L. Zhang, T. Hajiri, A. Rajan, D. Go, Hi. Asano, U. Schwingenschlögl, A. Manchon, Y. Mokrousov, M. Kläui, arXiv preprint arXiv:2401.16021 (2024)
- *Incommensurate charge and spin density wave order in electron doped SrMn1-xWxO3 (x= 0.08 to 0.1875),*P Yadav, S Sharma, **A Shahee**, I da Silva, V Petricek, NP Lalla**,** arXiv:1907.01858 (2019).

References

1. **Dr. N. P. Lalla (Ph.D. Supervisor):**
   Scientist-G, UGC-DAE Consortium for Scientific Research (CSR), Indore-452001 (M.P) India.
   Email ID: nplalla@csr.res.in,
   Phone: +91-73124-63913.
2. **Prof. Kee Hoon Kim (Postdoc Supervisor):**
   Professor of Physics, Department of Physics & Astronomy, Seoul National University, 1 Gwanak-ro, Gwanak-gu, Seoul 08826, Korea.
   Email ID: optopia@snu.ac.kr,
   Phone: +82-1031263518.
3. **Prof. Avinash. V. Mahajan (Postdoc Supervisor):**
   Dean of Academics and Professor of Physics, Department of Physics, Indian Institute of Technology Bombay, Powai, Mumbai, Maharashtra 400076, India.
   E mail ID: mahajan@phy.iitb.ac.in,
   Phone: +91-98692-25933
4. **Prof. Mathias Kläui (Postdoc Supervisor):**
   Professor of Physics and Director of Centre for Dynamics and Topology, Institute of Physics, University of Mainz, Staudinger Weg 7, 55128 Mainz, Germany.
   E mail ID: Klaeui@uni-mainz.de,
   Tel. +49 6131 39 23633