Dr. Archana Tripathi

(Assistant Professor)

Email - archana851@gmail.com

Qualification-M.Sc , Ph.D. (Physics)

 Research Interest: Vibrational Modes, Raman and infrared frequencies, Aurivillius Oxides, Wilson Matrix Method, DFT.
Teaching Interest: Condensed Matter Physics, Computational Physics, Web Page: https://www.researchgate.net/profile/Archana-Tripathi-7



Academic Qualification

-NET(LS) qualified in December'2008.

| Degree | Year | <u>Remarks</u> |
|------------------------|------|---|
| Ph.D. | 2014 | IIT, Delhi |
| | | Title- Raman and infrared investigations of |
| | | complexes in Aurivillius phases. |
| M.Sc. (Physics) | 2008 | Delhi University |
| B.Sc. (Physics) Honors | 2006 | Delhi University |

Experience and post held

Working as Asst Professor for Physics Department of Gargi College, Delhi University since July'2009.

Publications

- A lattice dynamical investigation of the Raman and the infrared wavenumbers of SBT (SrBi₂Ta₂O₉), Journal of Molecular Structure Volume 984, Issues 1–3, 15 December 2010, Pages 204–208
- Lattice vibrations of ABi₂Nb₂O₉ crystals (A = Ca, Sr, Ba), Vibrational Spectroscopy, Volume 56, Issue 2, 18 July 2011, Pages 235-240

- Lattice dynamical investigations for Raman and infrared frequencies of Bi₂WO₆, Journal of Molecular Structure, Volume 1005, Issues 1–3, 16 November 2011, Pages 53-58
- A lattice dynamical investigation for the Raman and the infrared frequencies of Bi₂W₂O₉, Physica B: Condensed Matter, Volume 407, Issue 3, 1 February 2012, Pages 477-484
- Investigation of Raman and infrared phonon modes in case of Barium Bismuth Tantalate (BaBi₂Ta₂O₉), Vibrational Spectroscopy, Volume 68, 14 June 2013,Pages 129-132
- 6. Investigation of Lattice Dynamics of Bi-doped Strontium Bismuth Niobate ferroelectric ceramic, Journal of Basic and Applied Engineering Research, Volume 2, Issue 22, December 2015, Pages 1936-1940.
- Lattice dynamics of Aurivillius Oxides K_{0.25}Na_{0.25}La_{0.5}Bi₂Nb₂O₉ and K_{0.25}Na_{0.25}Bi_{2.5}Nb₂O₉, AIP conference Proceedings, Volume- 1728, Pages 021657.
- A normal coordinate analysis of Sr2BO4 crystals (B = Ti, V, and Mn), June 2021, Materials Today: Proceedings, DOI: 10.1016/j.matpr.2021.06.015
- First principle investigations of half metallicity in Heusler compounds with X2TiZ (X = V, Cr, Mn, Fe, Co, and Ni; Z = Si, Ge), August 2021, AIP Conference Proceedings 2352(1):020092, DOI: 10.1063/5.0052490
- 10.A lattice dynamical investigation of the Raman and the infrared wave numbers of Ruddlesden-Popper compound Sr2TiO4, August 2021, AIP Conference Proceedings 2352(1):020089, DOI: 10.1063/5.0052397
- 11.Study of lattice dynamics of Ruddlesden-Popper compounds Sr2RuO4 and Sr2TcO4, January 2022, Indian Journal of Physics, DOI: 10.1007/s12648-021-02241-8
- 12.Lattice vibrations of the Ruddlesden-Popper compounds barium orthorhodate, barium orthoiridate, barium orthoplumbate, and barium orthostannate in tetragonal phase, February 2022, Spectroscopy Letters 55(35):1-8, DOI: 10.1080/00387010.2022.2030363
- 13.Effect of M site cation ordering on the lattice dynamical properties of the tetragonal Sr 2 MO 4 (M=Cr, Fe, Co, Mo, and Sn) crystals, February 2022, Philosophical Magazine, DOI:10.1080/14786435.2022.2035006
- 14.Study of zone center phonons in double-perovskite oxides Ba2CdTeO6, May 2022, MRS Advances, DOI: 10.1557/s43580-022-00290-7

Conferences Attended

1. International Conference on Nanomaterials and Nanotechnology, ICNANO 2011.

- International conference on Current Developments in Atomic, Optical and Nano-Physices, CDAMOP-2011 and presented the paper "Archana, H.C. Gupta and Vandna Luthra, Lattice investigations of Raman and infrared phonon modes in case of Lead Niobates" as poster.
- 3. 23rd International Conference on Raman Spectroscopy, ICORS-2012 and presented the paper "**Archana** and H.C. Gupta, Raman and infrared phonon modes in case of Bismuth Molybdate using Normal coordinate analysis" as poster.
- International conference on Condensed Matter and Applied Physics, ICC 2015 and presented the paper " Archana and H.C. Gupta, Lattice dynamics of Aurivillius Oxides K_{0.25}Na_{0.25}La_{0.5}Bi₂Nb₂O₉ and K_{0.25}Na_{0.25}Bi_{2.5}Nb₂O₉" as poster which was selected for AIP Proceedings.
- 5. ADVANCED MATERIALS AND RADIATION PHYSICS (AMRP-2020): 5th National e-Conference on Advanced Materials and Radiation Physics, "First principle investigations of half metallicity in Heusler compounds with X2TiZ (X = V, Cr, Mn, Fe, Co, and Ni; Z = Si, Ge)" as poster which was selected for AIP Proceedings.

Current Research Interests

- 1. I am working on the vibrational modes in 4 layer Aurivillius titanate complexes through classical GF matrix approach. This part of reaseach is done with calculations and now it is in data analysis mode and results will be published soon.
- I am also interested in quantum mechanics or first principle calculations of vibrational modes in Aurivillius complexes to verify all my classically calculated results. Additionally, I am working on Heusler compunds through ab initio approach using quantum espresso software.
- 3. Also, in our group, we are working on vibrational properties of different oxides.

SIGNATURE

(Archana)