

BIO DATA AND ACADEMIC RESUME



Sachin Rai

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Educational Qualifications

Degree	Institute	Year	Division
PhD.(Physics)	V. B. S. Purvanchal University	2019-2024	--
M.Sc.(Physics)	V. B. S. Purvanchal University	2017	First

Teaching and Research Experience (5-years)

JRF in Physical Sciences	CSIR-UGC	(Dec-2017)
JRF in Physical Sciences	CSIR-UGC	(Dec-2018)
SRF in Physics	CSIR-UGC	(Feb-2021)

Paper Published in SCIE/ Scopus Journal:	17
Book Chapter Published:	01
International Conference:	11

Achievements

❖ **Best Oral Presentation, Award -2024**

Research paper Published in SCIE/SCOPUS

1. “Elastic, Mechanical and Thermophysical properties of Single-Phase Quaternary ScTiZrHf High-Entropy Alloy” **Sachin Rai**, Pramod Kumar Yadawa, Navin Chaurasiya, Physics and chemistry of solid state. 22 (4) (2021) 687-696. Doi: 10.15330/pcss.22.4.687-696.
2. “Investigation of intermetallic GdFeAl ternary compound by elastic, and thermophysical and ultrasonic analysis”, Pramod Kumar Yadawa, **Sachin Rai**, Navin Chaurasiya, Aadesh Kumar Prajapati, Eurasian Physical Technical Journal, 19, (2022) 105-112. Doi: 10.31489/2022No1/105-112.
3. “Mechanical and Thermophysical Properties of Mg₃TH₇ (T= Mn, Tc, Re) Complex Hydrides”, **Sachin. Rai**, Navin Chaurasiya, Pramod Kumar Yadawa, International Journal of Scientific Research in Science and Technology 8(1), (2021) 282-287. Doi: <https://doi.org/10.32628/IJSRST.RAMAN2181>.
4. “Effect of Pressure on Elastic Constants and Related Properties of TbNiAl Rare-Earth Intermetallic Compound” **Sachin Rai**, Aadesh Kumar Prajapati, Pramod Kumar Yadawa, Physical Mesomechanics, **26**, (2023) 495–504. Doi: <https://doi.org/10.1134/S1029959923050028>
5. “Pressure-Dependent Elastic, Mechanical, Thermo-Physical and Ultrasonic Properties of Titanium Diboride”, Aadesh Kumar Prajapati, **Sachin Rai**, Pramod Kumar Yadawa, MAPAN-Journal of Metrology Society of India, 37(3), (2022) 597-609 Doi; <https://doi.org/10.1007/s12647-022-00590-1>.
6. “Investigation of the Effect of Temperature on Ultrasonic, Mechanical and Thermal Properties in Single Silver Nanowire” Pramod Kumar Yadawa, Navin Chaurasiya, **Sachin Rai**, Aadesh Kumar Prajapati, Physics and Chemistry of Solid State. 23 (2), (2022) 285-296.
7. “Mechanical, Elastic and Thermal Properties of Hexagonal BC₂N Superhard Material”, Navin Chaurasiya, **Sachin Rai**, Pramod Kumar Yadawa, Journal of Scientific Research, 14(1), (2022) 229-242. <https://doi.org/10.3329/jsr.v14i1.55038>.

8. "Ultrasonic Wave Propagation in Hexagonal SrMnO₃ Compound", Navin Chaurasiya, **Sachin. Rai**, Pramod Kumar Yadawa, International Journal of Scientific Research in Science and Technology 8 (1), (2021) 516-519. <https://doi.org/10.32628/IJSRST.RAMAN2181>.
9. "Pressure-dependent elastic, mechanical and ultrasonic analysis of CaAuBi compound", Aadesh Kumar Prajapati, **Sachin Rai**, Pramod Kumar Yadawa, Physics of the Solid State, 64 (10), (2023) 1498-1505.
10. "Theoretical Investigations on Mechanical and Ultrasonic Characteristics of Gallium Nitride Semiconductor under High Pressure", Aadesh Kumar Prajapati, **Sachin Rai**, and Pramod Kumar Yadawa, Emergent mater. 5, (2022) 1985–1993. Doi: <https://doi.org/10.1007/s42247-022-00419-2>.
11. "Temperature-Dependent Ultrasonic Properties of Semiconducting M₂CO₂ (M= Ti, Zr, Hf) MXenes", Pramod Kumar Yadawa, Navin. Chaurasiya, **Sachin Rai**, Aadesh Kumar Prajapati, J. Sci. Res. 14 (3), (2022) 735-748. Doi: <http://dx.doi.org/10.3329/jsr.v14i3.56976>.
12. "Effect of temperature on elastic, mechanical and thermophysical properties of VN_x (0.76 ≤ x ≤ 1.00) epitaxial layers", **Sachin. Rai**, Aadesh Kumar Prajapati, and Pramod Kumar Yadawa, Journal of the Korean Physical Society, 82, (2023) 46–56. Doi: <https://doi.org/10.1007/s40042-022-00643-3>.
13. "Theoretical investigation on mechanical, thermal, and ultrasonic properties of epitaxial nanostructured ZrN layers growth on MgO (001) substrate" Aadesh Kumar Prajapati, **Sachin Rai**, Prashant Srivastav, Pramod Kumar Yadawa. ChemPhysMater. 2(3), 253-258, (2023). Doi: <https://doi.org/10.1016/j.chphma.2023.02.003>.
14. "Temperature dependent behaviour of elastic and ultrasonic proprieties of transition metal carbide Mo₂C superconductor" **Sachin Rai**, Pramod Kumar Yadawa, Jordan Journal of Physics, 17 (1) (2024) (In Press).
15. "Synthesis and characterization of Cuo-NiO nanocomposite as gas sensing material for liquefied petroleum gas", Sachin Rai, Navin Chaurasiya, Ajeet Singh, Bal Chandra Yadav Sensors and Actuators A: Physical Journal (Under Review).

Paper Presented in International /National Conference

1. "Nanoparticles in optical sensor technology" **Sachin Rai**, Navin Chaurasiya, Pramod K. Yadawa. **International Conference on Ultrasonic and Materials Science for Advanced Technology 2019 (ICUMSAT-2019)**, Department of Physics, Rajju Bhैया institute, Veer Bahadur Singh Purvanchal University Jaunpur U.P. on 16-18 November 2019.
2. "Elastic and ultrasonic properties of Mo₂C" **Sachin Rai**, Pramod K. Yadawa, **Three days National Virtual Conference on Popularity of Science Among the Society**, Department of Physics, Bundelkhand University, Jhansi, U.P. on 12-14 October 2020.
3. "Mechanical and Thermophysical properties of Mg₃Th₇ (T=Mn, Tc, Re) Complex Hydrides" **Sachin Rai**, Navin Chaurasiya, Pramod Kumar Yadawa. International E-Conferences on **Recent Advances in Material Science and nanotechnology (RAMAN-2021)**, Arts, Commerce & Science College, Maregaon on 7-9 February 2021.
4. "Non- destructive investigation of laves phase compounds" **Sachin Rai**, Aadesh Kumar Prajapati, Navin Chaurasiya, Pramod Kumar Yadawa. **International Conference on Diverse Emerging Materials and Their Applications (ICDEMA-2021)**, University of Lucknow on 14-15 March 2021.
5. "Elastic Mechanical and thermophysical properties of HMO₂ (H=Zr and Hf) laves phase compounds" **Sachin Rai**, Pramod Kumar Yadawa. **Sixth International Conference on Advances in Materials Sciences (Online) (ICAMS-2021)**, Raje Ramrao Maha Vidyalyaya, Jath Kolhapur on 23-24 April 2021.
6. "Investigation of the effect of temperature on mechanical and thermal properties of hexagonal transition metal discilicides" **Sachin Rai**, Pramod Kumar Yadawa, **2nd Virtual International Conference on Advances in Food and Agricultural Science and Technology (VICAFast-2022)**, Chemical Science Review and Letters, Salem, India On 27-28 August, 2022.
7. "Pressure dependent Mechanical and Thermo-Physical properties of the Laves Phase Compound" **Sachin Rai**, Pramod Kumar Yadawa, **International Conference on sustainability: Integrated and Scientific Approach (ICS-2022)**, Sathyabama institute of science and technology, Chennai on 02-04 November 2022.
8. "Synthesis and characterization and its applications as L.P.G sensor" **Sachin Rai**, Pramod Kumar Yadawa. **International Conference on Nanotechnology: opportunities and challenges (ICNOC-2022)**, Jamia Millia Islamia University, New Delhi on 28-30 November 2022.
9. "Investigation of Effect of Temperature on Mechanical and Thermal Properties of Hexagonal Transition Metal Disilicides" **Sachin Rai**, Pramod Kumar Yadawa, **International Conference on Advancement in Functional Materials (ICAFM-2024)**, Prof. Rajendra Singh (Rajju Bhैया) Institute of Physical Sciences for Study and Research, Veer Bahadur Singh Purvanchal University Jaunpur, India on 8-10 February 2024.