Curriculum Vitae

SOM NARAYAN NILKAMAL

Research Scholar

Department of Physics, Faculty of Science, The M. S. University of Baroda, Vadodara, Gujarat, India.

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OBJECTIVE

To obtain a position for carrying out research on Material Science, Condensed Matter Physics and Nanomaterial by material simulations and analysis using Density functional theory based on first principles calculation utilizing relevant knowledge and research experience.

Personal Details

Given Name:	Narayan
Family Name:	Som
Father's Name:	Nilkamal Panchanan Som
Gender:	Male
Residential Address:	4/Sureshwar complex, Ghantiyada, Ghadiyali pole, M. G. Road, Vadodara 390001.
Nationality:	Indian

Research Interest

- Structural, electronic, Dynamical, Thermal, Transport and Mechanical properties of materials using First Principles Calculations.
- Development of computational strategies for structure and property prediction of materials with core level programming.

Research Skills

- Experienced in performing computational research based on programming languages like FORTRAN, C, C++ and Python on platforms like MATLAB.
- Expertise in different operating systems like Windows and Linux-Ubuntu and CentOS.
- Familiar with Excel, Word, PowerPoint Template, LibreOffice, Origin, etc.
- Experienced with the First Principles Calculations performing quantum mechanical tools like Quantum Espresso, VASP, Guassian09 and ABINIT with familiar skills on LAMMPS software.

Research Experience and Achievements

- Awarded third prize in poster presentation of paper "*Hydrogen evolution reaction: The role of arsenene nanosheet and dopant*" in National conference: Recent Trends on Membrane and Separation Technology.
- Opportunity to present a poster on the paper entitled *"First Principles Calculation of Two-Dimensional Antimony and Antimony Arsenide"* in DAESSPS 2015 to be held at Amity University, Amity, Uttar Pradesh during December 21-25 (2015).
- Qualified PET (PhD Entrance Test) of The M. S. University of Baroda, Vadodara (2015).
- Gold Medallist in Physics (Bachelor of Science), Department of Physics, Faculty of Science, The M. S. University of Baroda, Vadodara (2013).

Seminar, Conference and Workshop Attended

- Worked two weeks in Department of Physics, University of Sri Jayewardenepura under Indo-Srilanka project.
- 63rd DAE Solid State Physics Symposium held in Guru Jambeshwar University of Science and Technology, Hishar Haryana Dec (2018).
- International Conference on Materials for Energy applications held in S.S Jain Subodh (Autonomous) college, Jaipur Rajasthan (2018).
- Recent Trends in Condensed Matter Physics held in Bose institute, Kolkata (2017).

- Recent Trends on Membrane and Separation Technology held in CSIR-Central Salt and Marine Chemical Research. Bhavnagar (2017).
- 61st DAE Solid State Physics Symposium held in KIIT University at Bhuvneshwar, Orissa (2016).
- National Conference on Recent Trends in Science of Materials held at The M. S. University of Baroda, Vadodara (2015).
- 60th DAE Solid State Physics Symposium held in Amity University held at Noida, UP (2015).
- One day workshop on IPR (patent) & Innovation" held at Central University of Gujarat (2015).
- Attended 21 days' workshop entitled "SERB School on DFT & Beyond: Computational Materials Science and Material Design" held at The M. S. University of Baroda, Vadodara (2014).

Projects

- Electronic and Photovoltaic properties of Two-Dimensional Hybrid Organic and Inorganic Perovskites (DST, Government of India funded International Project: Indo-Srilanka, **Ref.: DST/INT/SL/P-21/2016**).
- Energy landscape and pressure induced phase transition and amorphization in transition metal dioxides using ab-initio calculations (UGC, Government of India sponsored National Project, **F.No. 42-806/2013(SR)**).
- Electronic Band Structure and Electronic Density of State of Intrinsic Graphene and Nitrogen Substituted Graphene: A Density Functional Theoretical Study (M.Sc. Dissertation).
- Worked on the "Structural Properties of TiO_2 added Sodium borosilicate" with Dr. Mukesh Pandey of HP&SRPD Bhabha Atomic research Centre (BARC).

Educational Details

Degree	School/Institution	Year of passing	Class
M.Sc. (Physics)	The M. S. University of Baroda, Vadodara, Gujarat	April 2015	First Class with Distinction
B.Sc. (hons. Physics)	The M. S. University of' Baroda, Vadodara, Gujarat	April 2013	First Class with Distinction
12^{th}	Baroda High School, SR. Baroda-1	May 2010	Second class
10^{th}	New Horizon School, SR. Baroda-1	May 2008	First Class with Distinction

List of Publications

1. **'Utilization of doped GQDs for ultrasensitive detection of catastrophic melamine: A new SERS platform.'***Spectrochimica Acta Part A: Molecular andBiomolecular Spectroscopy (2019)*
2. **'Photovoltaic activity of WSe2/Si hetero junction.'** *Materials Research Bulletin (2019)*
3. **'Role of CuAlO2 as an absorber layer for solar energy converter.'** *Solar Energy* (2019).
4. **'Hydrogen evolution reaction of metal di-chalcogenides: ZrS2, ZrSe2 and Janus ZrSSe.'** *International Journal of Hydrogen Energy* (2019).

5. **'Hydrogen evolution and oxygen evolution reactions of pristine and alkali metal doped SnSe2 monolayer.'** *International Journal of Hydrogen Energy* (2018)
6. "**Tunable and anisotropic photoresponse of layered $Re_{0.2}Sn_{0.8}Se_2$ ternary alloy.**" *Solar Energy Materials and Solar Cells* (2019).
7. "**Growth and application of $Sb_{0.5}Mo_{0.5}Se_2$ ternary alloy as photodetector**." *Materials Letters* (2019).
8. "**Based Flexible Photodetector Functionalized by WSe_2 Nanodots**." *ACS Applied Nano Materials* (2019).
9. "**Electrophoretically Deposited $MoSe_2/WSe_2$ Heterojunction from Ultrasonically Exfoliated Nanocrystals for Enhanced Electrochemical Photoresponse**." *ACS applied materials & interfaces* (2019).
10. "**Strain and layer modulated electronic and optical properties of low dimensional perovskite methylammonium lead iodide: Implications to solar cells**." *Solar Energy* (2018).
11. "**Hydrogen evolution reaction: The role of arsenene nanosheet and dopant**". *International Journal of Hydrogen Energy* (2018).
12. "**Strain effect on electronic and lattice dynamical behaviour of two-dimensional Bi, BiAs and BiSb.**" *AIP Conference Proceedings*. AIP Publishing, (2018).
13. "**Sensing behavior of a graphene quantum dot phenalenyl towards toxic gases**." *AIP Conference Proceedings*. AIP Publishing, (2018).
14. "***Magnetic behavior study of samarium nitride using density functional theory***". *Journal of Magnetism and Magnetic Materials* (2018).
15. "**Zeolite-Y entrapped metallo-pyrazolone complexes as heterogeneous catalysts: Synthesis, catalytic aptitude and computational investigation**". *Journal of Microporous and Mesoporous Materials* (2018).
16. "**Enhancing the potency of surface hydroxyl groups of graphene oxide for selective oxidation of benzyl alcohol**." *Diamond and Related Materials* (2018).
17. "**Tailoring the Electronic and Magnetic Properties of Peculiar Triplet Ground State Polybenzoid Triangulene**". *Journal of Chemistry Select*. (2018).

18. **"Investigation of morphological and structural properties of V incorporated $SnSe_2$ single crystals"** *Materials Science in Semi-conductor Processing* (2018).
19. *"***Structural, Electronic and Dynamical Properties of Curium Monopnictides: Density Functional Calculations***" Journal of ELECTRONIC MATERIALS (2017).*
20. *"***A Comparative Study of Hydrogen Evolution Reaction on WS_2 and PtS_2 pseudo-monolayer: Insight based on Density Functional Theory***" Catalysis Science & Technology* (2017).
21. *"***First Principles Calculation of Two-Dimensional Antimony and Antimony Arsenide**" *AIP Conference Proceedings* 1832, 090046 (2017).
22. *"***Structural, electronic and dynamical properties of binary alloy ZrAl using densisty functional theory***". Journal of Advanced Materials Research.* (2016).
23. *"***First principles study of electronic, lattice dynamic and thermal properties of single layer phosphorene***". Journal of Advanced Materials Research* (2016).
24. *"***First principles calculation of two-dimensional antimony and antimony arsenide***" AIP Conference Proceedings* 1731, 090024 (2016).

Reference

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