

Detailed publications list:

A. Papers in Peer-Reviewed Journals

1. Quasiperiodic potassium adlayer on decagonal Al-Ni-Co quasicrystal
Vipin Kumar Singh, M. Krajci, P. Bhakuni, P. C. Canfield and S. R. Barman, **J. Phys.: Condens. Matter** (2025). DOI: [10.1088/1361-648X/adfe4b](https://doi.org/10.1088/1361-648X/adfe4b)
2. Magnetic Manipulation of Spatially Confined Multiferroic Heuslers by Martensitic Microstructure Engineering; Takhsa, Singh et al., **Small Structures** (2025). DOI: [10.1002/ssstr.202500284](https://doi.org/10.1002/ssstr.202500284)
3. Atomic structure, chemical composition, and oxidation behavior of the (001) surface of Ni₂In₃ intermetallic catalyst
A. Y. Alfahad, Vipin Kumar Singh, E. Gaudry, J. Ledieu, A. M. Gardner, P. R. Chalker, R. McGrath, V. Fournée, P. Gille, and H. R. Sharma, **Physical Review Materials** **9**, 035801 (2025). DOI: [10.1103/PhysRevMaterials.9.035801](https://doi.org/10.1103/PhysRevMaterials.9.035801)
4. Stoichiometry-Driven Formation of Two-Dimensional Ternary Oxides: From Quasicrystal Approximants to Honeycomb Lattice Structures
C. Ruano-Merchan, Vipin Kumar Singh, O. Copie, S. Andrieu, L. Pasquier, M. Sicot, J. Ledieu, and V. Fournée, **Journal of Physical Chemistry C** **128**, 21, 8839–8844 (2024). DOI: [10.1021/acs.jpcc.4c017830](https://doi.org/10.1021/acs.jpcc.4c017830)
5. Decagonal thick film of Sn on d-Al-Ni-Co
Vipin Kumar Singh, E. Pospisilova, M. Mihalkovic, M. Krajci, P. Bhakuni, S. Sarkar, K. Pussi, D. L. Schlagel, T. A. Lograsso, P. C. Canfield, and S. R. Barman, **Physical Review B** **107**, 045410 (2023). DOI: [10.1103/PhysRevB.107.045410](https://doi.org/10.1103/PhysRevB.107.045410)
6. Charge density wave induced nodal lines in LaTe₃
S. Sarkar, J. Bhattacharya, P. Sadhukhan, D. Curcio, R. Dutt, Vipin Kumar Singh, M. Bianchi, A. Pariari, S. Roy, P. Mandal, T. Das, P. Hofmann, A. Chakrabarti, S. R. Barman, **Nature Communications** **14**, 3628 (2023). DOI: [10.1038/s41467-023-39271-1](https://doi.org/10.1038/s41467-023-39271-1)
7. Bulk electronic structure of Ni₂MnGa studied by density functional theory and hard x-ray photoelectron spectroscopy
J. Bhattacharya, P. Sadhukhan, S. Sarkar, Vipin Kumar Singh, A. Gloskovskii, S. R. Barman, and A. Chakrabarti, **Physical Review B** **108**, L121114 (2023). DOI: [10.1103/PhysRevB.108.L121114](https://doi.org/10.1103/PhysRevB.108.L121114)
8. Local hybridized states of adsorbed atomic Sn on WS₂ substrate
M. Mohan, Vipin Kumar Singh, Reshmi S., M. R. Sahoo, S. R. Barman, and K. Bhattacharjee, **Applied Surface Science** **635**, 157765 (2023). DOI: [10.1016/j.apsusc.2023.157765](https://doi.org/10.1016/j.apsusc.2023.157765)
9. Electronic structure of the β -Al₃Mg₂ and Al₁₃Fe₄ complex metallic alloys
Vipin Kumar Singh, M. Krajci, S. Sarkar, M. Balal, S. Barman, P. Sadhukhan, A. Gloskovskii, M. Feuerbacher, C. Thomas, P. Ebert, E. Rotenberg, K. Horn, and S. R. Barman, **Physical Review B** **105**, 205107 (2022). DOI: [10.1103/PhysRevB.105.205107](https://doi.org/10.1103/PhysRevB.105.205107)
10. Bulk electronic structure of high-order quaternary approximants
S. Sarkar, P. Sadhukhan, Vipin Kumar Singh, A. Gloskovskii, K. Deguchi, N. Fujita, and S. R. Barman, **Physical Review Research** **3**, 013151 (2021). DOI: [10.1103/PhysRevResearch.3.013151](https://doi.org/10.1103/PhysRevResearch.3.013151)

11. *Anderson localization of electron states in a quasicrystal*
S. Sarkar, M. Krajcí, P. Sadhukhan, Vipin Kumar Singh, A. Gloskovskii, P. Mandal, V. Fournée, M.-C. de Weerd, J. Ledieu, I. R. Fisher, and S. R. Barman, **Physical Review B** **103**, L241106 (2021). DOI: [10.1103/PhysRevB.103.L241106](https://doi.org/10.1103/PhysRevB.103.L241106)
12. *Quasiperiodic ordering in thick Sn layer on i-Al-Pd-Mn: A possible quasicrystalline clathrate*
Vipin Kumar Singh, M. Mihalkovic, M. Krajcí, S. Sarkar, P. Sadhukhan, M. Maniraj, A. Rai, K. Pussi, D. L. Schlagel, T. A. Lograsso, A. K. Shukla, and S. R. Barman, **Physical Review Research** **2**, 013023 (2020). DOI: [10.1103/PhysRevResearch.2.013023](https://doi.org/10.1103/PhysRevResearch.2.013023)
13. *Electronic structure and morphology of thin surface alloy layers formed by deposition of Sn on Au(1 1 1)*
P. Sadhukhan, D. Pandey, Vipin Kumar Singh, S. Sarkar, A. Rai, K. Bhattacharya, A. Chakrabarti, and S. R. Barman, **Applied Surface Science** **506**, 144606 (2020). DOI: [10.1016/j.apsusc.2019.144606](https://doi.org/10.1016/j.apsusc.2019.144606)
14. *Aqueous phase semihydrogenation of alkynes over Ni–Fe bimetallic catalysts*
R. K. Rai, M. K. Awasthi, Vipin Kumar Singh, S. R. Barman, S. Behrens, and S. K. Singh, **Catalysis Science & Technology** **10**, 4968 (2020). DOI: [10.1039/D0CY01153C](https://doi.org/10.1039/D0CY01153C)
15. *Atomic adsorption of Sn on mechanically cleaved WS₂ surface at room temperature*
M. Mohan, Vipin Kumar Singh, S. Reshmi, S. R. Barman, and K. Bhattacharjee, **Surface Science** **701**, 121685 (2020). DOI: [10.1016/j.susc.2020.121685](https://doi.org/10.1016/j.susc.2020.121685)
16. *Electronic structure of Au-Sn compounds grown on Au (111)*
P. Sadhukhan, S. Barman, T. Roy, Vipin Kumar Singh, S. Sarkar, A. Chakrabarti, and S. R. Barman, **Physical Review B** **100**, 235404 (2019). DOI: [10.1103/PhysRevB.100.235404](https://doi.org/10.1103/PhysRevB.100.235404)
17. *Role of antisite disorder, electron-electron correlations, and a surface valence transition in the electronic structure of CeMnNi₄*
P. Sadhukhan, S. W. DSouza, Vipin Kumar Singh, R. S. Dhaka, A. Gloskovskii, S. K. Dhar, P. Raychaudhuri, A. Chainani, A. Chakrabarti, and S. R. Barman, **Physical Review B** **99**, 035102 (2019). DOI: [10.1103/PhysRevB.99.035102](https://doi.org/10.1103/PhysRevB.99.035102)
18. *Parameter dependent fabrication of Chromium nano-structures on Au (111) surface*
A. Rai, Vipin Kumar Singh, J. Nayak, and S. R. Barman, **Surface Science** **679**, 169-173 (2019). DOI: [10.1016/j.susc.2018.09.007](https://doi.org/10.1016/j.susc.2018.09.007)
19. *Carbon doping controlled thermoluminescent defect centers in nanoporous alumina for ion beam dosimetry*
S. Bhowmick, S. Pal, D. Das, Vipin Kumar Singh, S. A. Khan, R. Hübner, S. R. Barman, D. Kanjilal, and A. Kanjilal, **Journal of Applied Physics** **124**, 134902 (2018). DOI: [10.1063/1.5050246](https://doi.org/10.1063/1.5050246)

B. Papers published in conference proceedings

1. *Annealing effect on 5-fold icosahedral (i)-Al-Pd-Mn quasicrystal surface*
Vipin Kumar Singh, and S. R. Barman, **AIP Conference Proceedings** **2995**, 020091 (2024). DOI: [10.1063/5.0177942](https://doi.org/10.1063/5.0177942)
2. *Local electronic structure of Sn white flower motifs on five-fold i-Al-Pd-Mn surface using scanning tunneling spectroscopy*
Vipin

- Kumar Singh, P. Bhakuni, R. Batabyal, and S. R. Barman, **AIP Conference Proceedings** **3149**, 090002 (2024). DOI: 10.1063/5.0224701.
3. *Quasiperiodic Sn monolayer on 10-fold Al-Ni-Co quasicrystal surface at room temperature*
Vipin Kumar Singh, P. Sadhukhan, and S. R. Barman. **AIP Conference Proceedings** **2115**, 030275 (2019). DOI: 10.1063/1.5113114
 4. *Study of single grain decagonal Al-Ni-Co quasicrystal surface*
Vipin Kumar Singh, and S. R. Barman, **AIP Conference Proceedings** **2265**, 030311 (2020). DOI: 10.1063/5.0016759
 5. *Adsorption of Sn on UHV cleaved WS₂ surface: Signature of nearly commensurate growth*
M. Mohan, Vipin Kumar Singh, Reshmi S., S. R. Barman, and K. Bhattacharjee, **AIP Conference Proceedings** **2265**, 030405 (2020). DOI: 10.1063/5.0016942
 6. *Local electronic structure of UHV cleaved WS₂ surface: In-situ STM and STS studies*
M. Mohan, Vipin Kumar Singh, S. R. Barman, and K. Bhattacharjee, **AIP Conference Proceedings** **2115**, 030411 (2019). DOI: 10.1063/1.5113250
 7. *In-situ STS studies and first-principles calculations on bare and Sn adsorbed UHV exfoliated WS₂ layers*
M. Mohan, Vipin Kumar Singh, M. R. Sahoo, Reshmi S., S. R. Barman, and K. Bhattacharjee, **IOP Conf. Ser.: Mater. Sci. Eng.** **1221**, 012046 (2022). DOI:10.1088/1757-899X/1221/1/012046
 8. *Surface alloying in Sn/Au (111) at elevated temperature*
P. Sadhukhan, Vipin Kumar Singh, A. Rai, K. Bhattacharya, and S. R. Barman; **AIP Conference Proceedings** **1942**, 080073 (2018). DOI: 10.1063/1.5028907
 9. *In-situ growth of epitaxial Au-Sn on Au (111): An XPS and LEED study*
S. Barman, P. Sadhukhan, Vipin Kumar Singh, P. Bhakuni, and S. R. Barman, **AIP Conference Proceedings** **2369**, 020132 (2021). DOI:10.1063/5.0060984
 10. *X-ray photoelectron spectroscopy study of a layered tri-chalcogenide system LaTe₃*
S. Sarkar, Vipin Kumar Singh, P. Sadhukhan, A. Pariari, S. Roy, P. Mandal, and S. R. Barman, **AIP Conference Proceedings** **2220**, 100005 (2020). DOI: 10.1063/5.0001764
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