

Research Publications (2019- 2022)

1. M. Sharma, D. Mishra and **J. Kumar**, First-principles study of the structural and electronic properties of bulk ZnS and small Zn_nSn nanoclusters in the framework of DFT+U method, Physical Review B, 100, 045151, (2019).
2. S. C. Sahu, A. K. Pani, M. R. Mohanta and **J. Kumar**, Tree species diversity, distribution and soil nutrient status along altitudinal gradients in Saptasajya hill range, Eastern Ghats, India, Taiwan, International Journal of Life Science, 64(1), 28 (2019).
3. Thermal annealing induced structural, optical and electrical properties change in As₄₀Se_{60-x}Bi_x chalcogenide thin films, M.Behera, N.C.Mishra, **R.Naik**, C.Sripan, R.Ganesan, **AIP Advances**,**9**,095065 (2019) ISSN: 2158-3226
4. Structural, linear and non-linear optical properties of annealed and irradiated Ag/Se bilayer thin films for optoelectronic applications, **Ramakanta Naik**, Adyasha Aparimita, A.Behera, C. Sripan, R. Ganesan **Optik**, 194, 162894 (2019)
5. Annealing induced transformations in structural and optical properties of Ge₃₀Se_{70-x}Bi_x thin films Adyasha Aparimita, C.Sripan, R. Ganesan, **Ramakanta Naik**, Phase Transitions, 92 (8), 683-698 (2019).

6. Influence of Bi content on linear and nonlinear optical properties of $\text{As}_{40}\text{Se}_{60-x}\text{Bi}_x$ chalcogenide thin films, Mukta Behera, C. Sripan, R. Ganesan, N. C. Mishra, **Ramakanta Naik**, *Current Applied Physics*, 19(8), 884-893 (2019).
7. Structural and Morphological Modifications of AgInSe_2 and Ag_2Se_3 composite thin films on 140 MeV Ni ion irradiation, R. Panda, H. Rath, B. N. Dash, K. Asokan, U.P. Singh, **Ramakanta Naik**, **N.C.Mishra** *Applied Surface Science*, 479, 997-1005 (2019).
8. **P.K. Panda**, C. Providencia, S.A. Moszkowski, H. Bohr and J. da Providencia: "Hyperonic stars within the Bogoliubov quark meson model for nuclear matter ", *Int. J. Mod. Phys. E28* (2019) 1950034. 2018-19.
9. H.S. Sahoo, R.N. Mishra, D.K Mohanty, **P.K. Panda** and N. Barik: "Neutron star matter with strange interactions within constraints by GW170817 in a relativistic quark model", *Phys. Rev. C* 99 (2019) 055803.
10. Photo and thermal induced Bi_2Se_3 formation from Bi/GeSe₂ hetero junction layer for topological insulator, **Adyasha Aparimita**, C.Sripan, R. Ganesan, **Ramakanta Naik** *Optical Materials*, 89, 157-163 (2019).
11. Thermal annealing induced evolution of Bi_3Se_2 topological phase from Bi/As₂Se₃ thin film. Mukta Behera, **N.C.Mishra**, **Ramakanta Naik**, **Physica B**, 560, 51-59 (2019).
11. Thermal annealing induced evolution of AgIn_5Se_8 phase from Ag/In₂Se₃ bilayer thin film R.Panda, **Ramakanta Naik**, **N.C. Mishra** *Journal of Alloys and Compounds*, 778, 819 (2019).

12. Quantification of nonlinear absorption in ternary As-Sb-Se chalcogenide glasses
P.Pradhan, P.Khan, A.R.Aswin, K.V.Adarsh, **R. Naik**, *N.Das, A.K.Panda*, Journal of Applied Physics, 125 (1), 015105-5 (2019).
13. Switching of linear and nonlinear optical parameters in As₃₅Se₆₅ thin films upon annealing at both above and below T_g.,
P.Priyadarshini,D.Sahoo, A.Aparimita,D.Alagarasan, S.Vardharaj perumal,R.Ganesan, **R. Naik**, Applied Physics A,126 (11) 1-14 (2020)
14. Role of annealing temperature on optimizing the linear and nonlinear optical properties of As₄₀Se₅₀Ge₁₀ films, D.Sahoo, Priyadarshini,
A.Aparimita, D.Alagarasan, S.Vardharajperumal,R.Ganesan, **R. Naik**, RSC Advances,10, 26675-26685 (2020)
15. Influence of 120 MeV Ag Ion Irradiation on the structural, optical and electronic properties of As₄₀Se_{60-x}Bi_x thin films, **Mukta Behera, N.C. Mishra**, S.A.Khan, **Ramakanta Naik**, Journal of Non-Crystalline Solids, 444 (2020) 120191.
16. Role of thermal and photo annealing on nonlinear optical response of Ge₃₀Se₅₅Bi₁₅ thin films,
A. Aparimita, P. Khan, A. R. Aswin, K.V. Adarsh, R. Naik, Journal of Applied Physics, 127 (7) ,
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 17. Influence of low energy Ag ion irradiation on microstructural and optical properties of Bi/GeSe₂bilayer thin film, Adyasha Aparimita, Satya P. Sahoo, C.Sripan, R.Ganesan, **RamakantaNaik**, Applied Physics A, 126, 203 (2020).
 18. Photo and thermally induced properties change in Bi/Ag/Se trilayer thin film, **Ramakanta Naik**, Alok Kumar Rout, A. Aparimita, C.Sripan, R. Ganesan, Phase Transitions, 92(1) 65-78 (2019)

19. Linear and nonlinear optical properties change in Ag/GeS heterostructure thin films by thermal annealing and laser irradiation, **Ramakanta Naik***, A. Aparimita, D. Alagarasan, S. Vardharajperumal, R. Ganesan, *Optical and Quantum Electronics*, 52, 136 (2020)
20. Laser induced photo bleaching in Bi doped $\text{Ge}_{30}\text{Se}_{70}$ amorphous thin film, Adyasha Aparimita, C. Sripan, R. Ganesan, **Ramakanta Naik**, *Applied Physics A*, 126, 5 (2020)5, 0947-8396
21. Laser irradiation induced structural, microstructural and optical properties change in Bi doped $\text{As}_{40}\text{Se}_{60}$ thin films, M. Behera, N.C. Mishra, R. Naik, *Phase Transitions*, 93, 158-167 (2020) .
22. Bismuth thickness dependent structural and electronic properties of Bi/ As_2Se_3 bilayer thin films, Mukta Behera, N.C. Mishra, **Ramakanta Naik**, *Indian Journal of Physics* 94(4), 469-475 (2020).
23. Structural, vibrational and magnetic properties of NiO-(Mg,Ti) powders: The effect of reduction reaction, A. M. Padhan, **B. Kisan** and A. Perumal, *Journal of Magnetism and Magnetic materials*, 494 (2020) 165784.
24. Assessment of chromium phytotoxicity, phytoremediation and tolerance potential of *Sesbania sesban* and *Brachiaria mutica* grown on chromite mine overburden dumps and garden soil, Deepak Kumar Patra, Chinmay Pradhan, **Jagadish Kumar**, Hemanta Kumar Patra, *Chemosphere*, **252**, 126553 (2020).
25. Experimental and first-principle study of defects induced electronic and magnetic properties of ZnO nanocrystals, **Bhagaban Kisan, Jagadish Kumar** and Perumal Alagarsamy, *Journal of Physics and Chemistry of Solids*, **146**, 109580 (2020).
26. Epidemiological study of novel coronavirus (COVID-19). **Jagadish Kumar** and K.P.S.S. Hembram, arXiv preprint, [arXiv:2003.11376](https://arxiv.org/abs/2003.11376), <https://arxiv.org/abs/2003.11376> (2020).
27. **Sekhar Pal**, Thermal and thermoelectric conductivity of Einstein DBI system, *European Physical Journal C*. 80 (2020) 225.
28. Exact result for an STU model, G. L. Cardoso, B. de Wit and **Swapna Mohapatra**, *Journal Of High Energy Physics (JHEP)* 02, 127, (2020)
29. H.S. Sahoo, Supriya Karan R.N. Mishra and **P.K. Panda**: "Symmetry energy dilemma within a relativistic quark model", *Phys. Rev. C* 104 (2021) 055805.
30. K.P.S.S. Hembram and **Jagadish Kumar**, Epidemiological study of novel coronavirus (COVID-19): macroscopic and microscopic analysis, *International Journal of Community Medicine and Public Health*, 8(3), 1369 (2021).
31. **Bhagaban Kisan, Jagadish Kumar** and Perumal Alagarsamy, Room temperature ferromagnetism in Zn-doped NiO nanoparticles: an experimental and DFT+U approach, *Journal of Alloys and Compounds*, 868, 159176 (2021).
32. **Bhagaban Kisan, Jagadish Kumar**, Aneeta Manjari Padhan, Perumal Alagarsamy and Dobbidi Pamu, Size and strain induced phase formation and ferromagnetism in reduced TiO_2 powders, *Journal of Physics and Chemistry of Solids*, 154, 110058 (2021).
33. Triboelectrification based on NiO-Mg magnetic nanocomposite: Synthesis, device fabrication, and energy harvesting performance, Aneeta Manjari Padhan, Sugato Hajra, Sanjib Nayak, **Jagadish Kumar**, Manisha Sahu, Hoe Joon Kim, Perumal Alagarsamy, *Nano Energy*, 91, 106662 (2022),

34. Interface properties of CsPbBr₃/CsPbI₃ perovskite heterostructure for solar cell, **Jagadish Kumar** and K.P.S.S. Hembram, *Physica B: Condensed Matter*, 625, 413472 (2022).
35. Comparative Study of ZnO Nanomaterials Synthesized by Green and Electrospinning Methods, Subhodeep Barman, **Jagadish Kumar**, Arnab Kumar Das, Suranjan Sikdar, Abhijit Biswas, Srinivasan and Rahul Das, *Journal of Nano Research*, 72, 81 (2022).
36. Effect of dopants on magnetic and magnetoimpedance properties of rapidly solidified FeCoBM (M= Al,Cu and Si) ribbons, SK Manna, **B Kisan**, PK Panda, TK Nath , *Journal of Magnetism and Magnetic Materials* 544, 168647.
37. Effect of Cerium on Structural and Dielectric Properties of Modified BiFeO₃-PbTiO₃ Ceramics for Photovoltaic Applications, SK Parida, MK Swain, RK Bhuyan, **B Kisan**, RNP Choudhary, *Journal of Electronic Materials* 50 (8), 4685-4695.
38. R. Panda, **N. C. Mishra** and R. Naik, The impact of fluence dependent 120 MeV Ag swift heavy ion irradiation on the changes in structural, electronic, and optical properties of AgInSe₂ nano-crystalline thin films for optoelectronic applications, 2021, *RSC Advances*, 11(42): 26218-26227.
39. Pratik P Ray, **Sankarsan Tarai**, B. Mishra, S. K. Tripathy:Cosmological models with Big rip and Pseudo rip Scenarios in extended theory of gravity: *Fortschr. Phys.*, 69(10), 2100086 (2021). Impact factor: 6.099
40. **Sankarsan Tarai**, Pratik P Ray, B. Mishra, S. K. Tripathy: Effect of bulk viscosity in cosmic acceleration, arXiv:2102.0905v1[gr-qc],2021(accepted for publication, IJGMMP). Impact factor: 1.874

List of Publications

1. Pratik P Ray, **Sankarsan Tarai**, B. Mishra, S. K. Tripathy, "Cosmological models with extended theory of gravity", *Fortschr. Phys.*, 69(10), 2100086 (2021). Impact factor: 6.099 *Big rip and Pseudo rip Scenarios in*
2. **Sankarsan Tarai**, Pratik P Ray, B. Mishra, S. K. Tripathy, "Viscous fluid accelerating model in modified gravity", arXiv:2102.0905v1[gr-qc], 2021(accepted, *Int. J. Geom. Methods Mod. Phys.*). Impact factor: *model in modified gravity*,

- Y. Shaikh, **Sankarsan Tarai**, S.K. Tripathy, B. Mishra, “*Bouncing cosmological model with general relativistic hydrodynamics in extended gravity*” (Under Review in **Physica Scripta**).

- **Sankarsan Tarai**, Jagdish Kumar, “*Dynamical features of anisotropic cosmological models with exponential function of curvature in modified gravity*” (Under review in **Universe**)

1. Subhasmita Mishra, Nimmala Narendra, Prafulla Kumar Panda, **Nirakar Sahoo**, “*Scalar Dark Matter and Radiative Dirac Neutrino Mass in an Extended $U(1)_{B-L}$ Model*”, arXiv: 2112.12569. Under review in **Nucl.Phys.B**.

2. Bibhabasu De, Debottam Das, Manimala Mitra, **Nirakar Sahoo**, “*Magnetic Moments of Leptons, Charged Lepton Flavor Violations and Dark Matter Phenomenology of a minimal Radiative Dirac Neutrino Mass Model*”, arXiv: 2106.00979. Under review in **Phys.Rev.D**.

3. Ujjal Kumar Dey, Tapoja Jha, Ananya Mukherjee, **Nirakar Sahoo**, “*Leptogenesis in an Extended Seesaw Model with $U(1)_{B-L}$ symmetry*”, arXiv:2102.04494. Under review in **Nucl.Phys.B**.

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1. Accretion of radiation and rotating Primordial black holes, **Swapna Mahapatra** and Bibekananda Nayak, JETP, 122, no. 2, 243-247 (2016)
2. A comparative study of 2d Ising model at different boundary conditions using Cellular Automata, Jahangir Mohammed and **Swapna Mahapatra**, e-Print arXiv:1601.00518 , p1-19 (2016)
3. QMC approach based on the Bogoliubov independent quark model of the nucleon Henrik Bohr, Steven A. Moszkowski, **Prafulla K. Panda**, Constança Providencia and Joao da Providencia, Int J Mod Phys E24, 1650007 (2016)
4. Thickness effect on nano-multilayered Sb/As₂S₃ chalcogenide thin films **Ramakanta Naik**, Advanced Materials Letters, 7(10), 861 (2016)
5. Effect of laser irradiation on the optical properties of As₄₀Se₅₅Sb₅ thin films **Ramakanta Naik**, Tribikram Panda, R. Ganesan, Adv. Sci. Lett. 22, 294 (2016)
6. Generalization of SUSY quantum mechanics for PT symmetric systems.” Biswanath Rath, Asiri Nanayakkara, P.Mallick and **P.K. Samal**, Accepted in Proceedings of the National Academy of Sciences, India Section A: Physical Sciences, Springer

7. Thickness dependent ferromagnetism in thermally decomposed NiO thin films, Journal of Magnetism and Magnetic Materials, Patta Ravikumar, **Bhagaban Kisan** and A. Perumal, **418** (2016) 86-91.
8. Oxygen vacancy mediated enhanced photo-absorption from ZnO(0001) nanostructures fabricated by atom beam sputtering. Vanaraj Solanki, Shalik R. Joshi, Indrani Mishra, D. Kabiraj, **N. C. Mishra**, D. K. Avasthi and Shikha Varma. Journal of Applied Physics 120, 054303 (2016)

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11. Electrical and Magnetoelectric Properties of Ni–Co Doped BiFeO₃ Ceramics, M. R. Biswal, J. Nanda, **N. C. Mishra**, S. Anwar, Advanced Science Letters, 22, 2, 363- 366(4) (2016)
12. Measurement of the decay $B \rightarrow D/\nu_l$ in fully reconstructed events and determination of the Cabibbo-Kobayashi-Maskawa matrix element $|V_{cb}|$, R. Glattauer, Subhashree Mohanty et al. (Belle Collaboration), Phys. Rev. D 93, 032006 (2016).
13. Study of $B^0 \rightarrow \rho^+ \rho^-$ decays and implications for the CKM angle φ_2 , P. Vanhoefer, Subhashree Mohanty et al. (Belle Collaboration), Phys. Rev. D 93, 032010 (2016).
14. Observation of the decay $B^0 \rightarrow K^0 K^0\text{-bar}_S$, B. Pal, Subhashree Mohanty et al. (Belle Collaboration), Phys. Rev. Lett. 116, 161801 (2016).
15. Inclusive and Exclusive measurements of B decays to χ_{c1} and χ_{c2} at Belle, V. Bhardwaj, Subhashree Mohanty et al. (Belle Collaboration), Phys. Rev. D 93, 052016
16. Search for the rare decay $D^0 \rightarrow \gamma\gamma$ at Belle, N.K.Nisar, Subhashree Mohanty et al. (Belle Collaboration), Phys. Rev. D 93, 051102(R) 2016.
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1. *Optical properties change in Te diffused As₅₀Se₅₀ chalcogenide thin film*

Ramakanta Naik, M. Behera, R. Panda, N.C. Mishra

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2. *Optical property modification by Sb addition into As₄₀Se₆₀ alloy*

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3. *Influence of Bi addition on the optical properties of As₄₀Se₆₀ thin films.*

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R. Panda, **Ramakanta Naik**, U.P.Singh, **N.C. Mishra**

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S. Mahapatra, B. Mohanty, **P. K. Samal**, *Instruments and Methods in Physics Research*

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1. **Shesansu Sekhar Pal**, Thermodynamics of Einstein-DBI System, arXiv.1712.09249
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3. **Swapna Mahapatra**, Exact results for the STU model (with G.L.Cardoso and B. de Wit) (to appear)
4. Neutron star matter with Delta isobars in a relativistic quark model H S Sahoo, G Mitra, R N Mishra, **PKPanda**, and Bao-An Li (Paper submitted for publication)
5. Hadron-Quark phase transition in low mass neutron stars in a Modified Quark Meson Coupling model GMitra, H S Sahoo, R N Mishra, **PK Panda** Orissa J. Physics (2018)
6. Pranati K. Rath, **Pramoda Kumar Samal**, Srikanta Panda, D. Mishra, Pavan Aluri, Testing statistical isotropy in Cosmic Microwave Background Polarization Maps, Monthly Notices of the Royal Astronomical Society Volume 475, Issue 4, 2018, Pages 4357-4366
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8. Laser induced optical properties change by photo diffusion of Sb into As_2Se_3 chalcogenide thin films Prabhudutta Pradhan, **Ramakanta Naik**, N. Das, Ajit Kumar Panda **Optics and Laser Technology**, **96**, 158(2017)
9. Effect of Bi concentration on the structural and optical properties of $Bi_xGe_{30}Se_{70-x}$ chalcogenide thin films. Adyasha Aparimita, M. Behera, C. Sripan, R. Ganesan, S. Jena, **Ramakanta Naik Journal of Alloys and Compounds**, 739, 997-1004, 2018
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11. Effect of Ge addition on the optical properties of $As_{40}Se_{50}Ge_{10}$ thin films: An investigation through FTIR and Raman spectroscopy **Ramakanta Naik**, Jagnaseni Pradhan, S. Chinnaiyah, R. Ganesan **Phase Transition Published online 13 January 2018 doi.org/10.1080/01411594.2018.1424337**

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2. Finite nuclei based on quark meson coupling model S. Karan, P. K. Panda, A. Rabhi, and R. N. Mishra Proceedings of the DAE Symp. on Nucl. Phys. 62 (2017) 260
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4. Optical Properties Study in $\text{As}_{50}\text{Se}_{50}$ and $\text{As}_{50}\text{Se}_{40}\text{Te}_{10}$ Chalcogenide Thin Films. M. Behera, Parbati Naik, R. Panda, **Ramakanta Naik**, **AIP Conference Proceeding**, **1832**, 070009 (2017)
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6. Thermal Annealing Induced Modifications on the Structural and Optical Properties of AgInSe₂ Thin Film R. Panda, M. Panda, **Ramakanta Naik**, U. P. Singh, N. C. Mishra **AIP Conference Proceeding**, **1832**, 080042 (2017).
7. **P.K. Panda**, C. Providencia, S.A. Moszkowski, H. Bohr and J. da Providencia: "Hyperonic stars within the Bogoliubov quark meson model for nuclear matter ", Int. J. Mod. Physic E28 1950034. 2018-19 (2019)

