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Areas of Research:

VLSI Design, Nanotechnology and Photovoltaic

Published Paper:

SCI/SCOPUS INTERNATIONAL JOURNALS:

1. Benisha Chris A, Soumyaranjan Routray, "Boosting the Efficiency of Kesterite Solar Cell: Use of Ag Mixed Cu₂ZnSnS₄ Intermediate Thin Film Layer," *Physica Status Solidi A: Applications and Materials Science*, Wiley, vol. 219, no. 8, pp. 1862-6300, 2022. (SCI Indexed IF. 2.170) DOI: [<https://doi.org/10.1002/pssa.202100811>]
2. Benisha Chris A, S. Routray, "Performance Enhancement of Kesterite Solar Cell with Doped-Silicon Back Surface Field Layer," *Silicon*, Springer, vol. 14, no.13, pp. 1876-9918, 2022. (SCI Indexed IF. 2.941) DOI: [<https://doi.org/10.1007/s12633-021-01583-6>]
3. Benisha Chris A, Soumyaranjan Routray, Yehia Massoud, "Analysis of Loss Mechanisms in CZGSe Thin-film Kesterite Solar Cells: A Statistical Distribution for Defects and Traps," *ECS Journal of Solid State Science and Technology*, IOP Publishing, vol.11, no.10, pp.2162-8769, 2022. (SCI Indexed IF. 2.483) DOI: [[10.1149/2162-8777/ac9759](https://doi.org/10.1149/2162-8777/ac9759)]
4. Benisha Chris A, Soumyaranjan Routray, Yehia Massoud, "Analysis of Opto-Electrical, Trap Complexity and Defect Density in Cu-Zn-Ge-S/Se Kesterite Thin-Film Solar Cell," *Optical Materials*, Elsevier, vol. 133, no.112975, pp. 0925-3467, 2022. (SCI Indexed IF. 3.754) DOI: [<https://doi.org/10.1016/j.optmat.2022.112975>]
5. A. Benisha Chris, S. Routray and Y. Massoud, "Nanostructure Based CZGS/CZGSe Multiple Quantum Wells Could Sense Wider Solar Spectrum To Enhance Light-harvesting Efficiency," in *IEEE Sensors Journal*, Vol: 23, Iss:16, pp. 18125-18132, 2023. DOI: [<https://doi.org/10.1109/JSEN.2023.3287595>] (SCI Indexed IF. 4.325).

6. Benisha Chris A, Sricharan Pisupati, Soumyaranjan Routray “Performance Analysis of CZTSe Kesterite Solar Cell by Adding CZTSSe as BSF Layer”, RAEEUCCI Journal of Physics: Conference Series, IOP Publishing, vol. 2335, no.1, pp. 1742-6588, 2022. (Scopus Indexed: Impact Factor: 0.547) DOI: [10.1088/1742-6596/2335/1/012040]

SCOPUS INDEXED INTERNATIONAL CONFERENCES

1. Benisha chris A and Soumyaranjan Routray, "Performance Evaluation of Silver-Doped CZTSe Kesterite Solar Cell with p+-CZTSe as BSF Layer," Micro and Nanoelectronics Devices, Circuits and Systems: Select Proceedings of MNDCS, vol. 904, p. 209, 2023. (Scopus Indexed) DOI: [https://doi.org/10.1007/978-981-19-2308-1_22]
2. Benisha chris A, Soumyaranjan Routray “Performance Analysis in Kesterite CZGS/CZGSe Quantum Wells towards high-Efficiency Photovoltaic Applications”, ICNGIS -2022, Kerala, India. (Scopus Indexed) DOI: [10.1109/ICNGIS54955.2022.10079852]
3. Benisha chris A, Soumyaranjan Routray “Performance Enhancement of Dual Quantum Well CZGS/CZGSe Solar Cell by adding Silver-Doped CZTS as BSF layer”, ICECIE -2022, Malaysia. (Scopus Indexed) DOI: [https://doi.org/10.1109/ICECIE55199.2022.1]
4. Rajdeep Mishra, Utsav Khandelwal, Benisha Chris A, Manish Verma and Soumyaranjan Routray “Performance Evaluation of High Efficiency & Low Cost Bi-Layer Perovskite Solar Cell,” IEEE-(RAEEUCCI), Kattankulathur, Chennai , April 2023.(Scopus Indexed) DOI: [doi: 10.1109/RAEEUCCI57140.2023.10134439]

