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1	Name	Avishek Roy			
2	Designation	SACT 1			
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5	Date of Joining	02/11/2009			
Academic qualifications					
6	Degree	Subject	University	Year	
	PhD	Physics (Thin film semiconductor)	Indian Institute of Engineering Science and Technology	2021	
	MA/MSc	Electronics	University of Calcutta	2009	
	BA/BSc	Electronics	University of Calcutta	2007	
PH.D. DETAILS					
7	Title of the Thesis	Synthesis and Characterization of Cu-TiC Thin Film			
	Field of specialization under subject/discipline	Thin film semiconductor, solar cell and atmospheric plasma			
8	Google scholar page:	https://scholar.google.co.in/citations?hl=en&user=y7ynkMAAAAAJ			
9	ORCID ID	https://orcid.org/0000-0001-7784-1455			
10	CURRENT RESEARCH PROJECT/Field of Research	Tandem perovskite solar cell, CuO heterojunction solar cells.			
11	TECHNICAL UNDERSTANDING AND EXPERIENCE	• Electrical characterization of thin films • XRD, SEM, AFM, UV-Vis spectroscopy • Atmospheric Plasma Processing Unit SCAPS, Pspice, Scilab/Matlab, Python, 8085 ALP			
12	SUMMARY OF RESEARCH EXPERIENCE	**Doctoral Researcher** **2016-2020** • Thin film semiconductor fabrication using magnetron co-sputtering technique. • Thin film characterization using XRD, SEM, AFM, UV-Vis spectroscopy. **Post PhD Research** **2021-Present** • Development and characterization of Atmospheric plasma jet. • Plasma irradiation on thin films and post characterization. • Plasma treatment on human skin and tongue. • Perovskite and heterojunction solar cell characterization using SCAPS. ➢ Joint scientific research session with FDFCA Research Group, University of Science and Technology Mohamed Boudiaf (USTOMB), Algeria. Topic : Tuning Solar Cell Performances. 2021-2023.			
13	COMPLETE LIST OF PUBLICATIONS	1. **Roy A**, Benhaliliba M, Rahimi A, (2025) Impact of organic/hole transport layer in efficiency optimization of			

		$SnO_2/CH_3NH_3PbI_3$/Org/HTL perovskite solar cell: A simulation study, Journal of Engineering in Industrial Research. 2. Hembram S, Chavan N. M, **Roy A**, Kumar S, Majumdar A, Ghosh M, (2025) Optimizing Properties of Cold Sprayed CuAlFeB Powder on EN AW 7075 Substrate for Corrosion and Wear Resistance Applications, Journal of Materials Engineering and Performance. https://doi.org/10.1007/s11665-025-10651-6 3. Dris K, Benhaliliba M, Ayeshamariam A, **Roy A**, Kaviyarasu K, (2024) Improving the perovskite solar cell by insertion of methyl ammonium tin oxide and cesium tin chloride as absorber layers: scaps 1d study based on experimental studies, Journal of Optics. https://doi.org/10.1007/s12596-024-01996-7 4. **Roy A**, Benhaliliba M, (2023) Investigation of ZnO/p-Si heterojunction solar cell: Showcasing experimental and simulation study, Optik, 274, 170557. 5. **Roy A,** Majumdar A, (2022) Numerical Optimization of Cu_2O as HTM in Lead-Free Perovskite Solar Cells: A Study to Improve Device Efficiency, Journal of Electronic Materials, 52, 2020-2033. 6. **Roy A**, Banerjee A, Das S.C, Vaid A, Katiyal S, Majumdar A, (2022) Tolerance effect of a shock-free atmospheric plasma on human skin, Applied Physics A 128, 866. 7. **Roy A,** Majumdar A, (2022) Optimization of CuO/CdTe/CdS/TiO_2 solar cell efficiency: A numerical simulation modeling, Optik 251, 168456. 8. **Roy A**, Majumdar A, (2021) Optoelectronic and surface properties of CuO clusters: Thin film solar cell, Journal of Materials Science: Materials in Electronics, 32, 27823–27836. 9. Mukhopadhyay A.K, **Roy A***, Das S.C, Majumdar A, Hippler R, (2021) Surface Stoichiometry and Depth Profile of Ti_x-Cu_yN_z Thin Films Deposited by Magnetron Sputtering, Materials 14, 3191. 10. **Roy A**, Ghosh N, Ghosh M, Das S.C, Majumdar A, (2021) Atmospheric plasma irradiation for surface modification of Cu-TiC thin film, Applied Physics A 127, 182. 11. **Roy A**, Mukhopadhyay A.K, Das S.C, Majumdar A, (2021) Transport properties of n-type Cu_x-Ti_yC_z thin film semiconductor at different Cu/TiC ratios, Materials Today Proceedings 42,2 726-732. 12. **Ro**y A, Das S.C, Majumdar A, (2021) Annealing effects on the surface properties of Cu-TiC films Materials Today Proceedings 44 170-175. 13. **Roy A**, Mukhopadhyay A.K, Gupta M, Majumdar A, (2020) Negative Capacitance Effect of Cu-TiC Thin Film Deposited by DC Magnetron Plasma, Bulletin of Materials Science 43, 260. 14. Mukhopadhyay A.K, Momin M.D, **Roy A***, Das S.C, Majumdar A, (2020) Optical and Electronic Structural Properties of Cu3N Thin Films: A First-principle study (LDA+U), ACS Omega 5, 49, 31918–31924. 15. **Roy A**, Mukhopadhyay A.K, Das S.C, Bhattacharjee G, Majumdar A, Hippler R, (2019) Surface Stoichiometry and Optical Properties of Cu_x–Ti_yC_z Thin Films Deposited by Magnetron Sputtering, Coatings, 9 (9), 551. 16. **Roy A**, Mukhopadhyay A.K, Hembram S, Manojit Ghosh Abhijit Majumdar, Conductive glass coating: Effect of atmospheric plasma treatment, AIP Conference Proceedings 2115, 030248. 17. Mukhopadhyay A.K, **Roy A**, Das S.C, Hippler R, Majumdar A,

		(2019) Synthesis of Ti_x-Cu_yN_z thin film: Electronic bond structure, AIP Conference Proceedings 2142, 080002. 18. Mukhopadhyay A.K, **Roy A**, Das S.C, Wulff H, Hippler R, Majumdar A,(2018) Self-buckled effect of cubic Cu_3N film: Surface stoichiometry, AIP Conference Proceedings 1953, 100078. **Chapters** 1. Benhaliliba M, **Roy A**, Kaleli M, Sen E, (2024) P3HT Polymer Based Heterojunction: Fabrication, Characterization & Computational Assessment, Progress – Polymers, Composites & Nanocomposite Materials: Fabrication, Characterization and Applications, Shubhagam Publications, ISBN 978-81-950003-6-4. 2. Banerjee A, Majumdar A, **Roy A**, (2018) Cold atmospheric plasma treatment for eradication of tumour in B16 malignant melanoma mouse model-a novel approach: Proceedings of the national seminar on Biotechnology in human health and environment" Avenel Press ISBN 978-93-80736-83-9 151-153.