

PROFORMA FOR BIO-DATA (to be uploaded)



1. Name and full correspondence address

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3. Institution

Bonam Venkata Chalamayya Institute of Technology and Science

4. Date of Birth: 10/06/1990

5. Gender (M/F/T): MALE

6. Category Gen: OBC

7. Whether differently abled (No)

8. Academic Qualification (Undergraduate Onwards)

	Degree	Year	Subject	University/Institution	% of marks
1.	B.Tech	2013	ETE	IETE New Delhi	71.34
2.	M.Tech	2016	ECE	NIT Arunachal Pradesh	81.20
3.	Ph.D.	2023	ECE	NIT Jamshedpur	NA
4.	Post Doc	2024	ECE	IIT (ISM), Dhanbad	NA

9. Ph.D thesis title, Guide's Name, Institute/Organization/University, Year of Award.

Ph.D thesis title : Opto-Electrical Parameters Enhancement of CIGSSe/Perovskite Based Thin Film Solar Cells

Guide's Name : Dr. Akhilesh Kumar

Name, Institute : NIT, Jamshedpur

Year of Award 2023

10. Work experience (in chronological order).

Sr.No.	Positionsheld	Name of theInstitute	From	To	Pay Scale
1	Assistant Professor	Rashtra-Kavi Ramdhari Singh Dinkar college of engineering, Begusarai Bihar	11/08/2016	21/07/2021	7 th Pay
2	Survey Engg.	Telecom Infrastructural Consultancy Services Private Limited Gurgaon Haryana (India)	13/08/2013	20/08/2013	6 th Pay
3	Postdoctoral (Research Associate-1)	Indian Institute of Technology (Indian School of Mines) Dhanbad, India	14/07/2023	24/03/2024	7 th Pay

11. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.

S.No	Name of Award	Awarding Agency	Year

12. Publications (*List of papers published in SCI Journals, in year wise descending order*).

Sr. No.	Author(s)	Title	Name of Journal	Volume	Page	Year
1	Raushan Kumar, Akhilesh Kumar	Impact of CeMnO ₂ window and CeMnO ₂ buffer layer nanomaterials parameters on the performance of ACZTSSe/Perovskite solar cell	Materials Today Communications	38	108300	2024
2	Raushan Kumar, Alisha Priya	Development of CeMnO ₂ and CeMnO ₂ buffer layer nanomaterials for CIGSSe/perovskite double-graded solar cells	Optical Materials	146	114548	2023
3	Raushan Kumar, Akhilesh Kumar	Development of an efficient double absorber CIGSSe/perovskite solar cell with the combination of experimental data of Mg-doped CeO ₂ buffer layer	Optical Materials	139	113731	2023
4	Raushan Kumar, Akhilesh Kumar	Performance Enhancement of ZnMgO:Al/ZnMgO/CIGSSe Solar Cell With the Combination of CZTGSe HT-ERL Layer	Journal of Electronic Materials	51	84-103	2021
5	Raushan Kumar, Akhilesh Kumar	Efficiency improvement of ZnMgO/CIGSSe heterojunction solar cell by using double graded Cu ₂ O ER-HTL and CeMgO ₂ HR-ETL materials	Optical Materials	131	112697	2022

6	Raushan Kumar, Akhilesh Kumar	Development of high efficiency $\text{Ce}_{1-x}\text{MgBO}_2$ buffer and perovskite HTL based CIGSSe thin film solar cell	Physica B: Physics of Condensed Matter	653	414691	2023
		using a simulation approach				
7	Raushan Kumar, Akhilesh Kumar, Alisha Priya	Efficiency enhancement of the CIGSSe/Perovskite inorganic and organic thin-film solar cell	optik	295	171466	2023
8	Raushan Kumar, Akhilesh Kumar, Ravi Pushkar, Alok Priyadarshi	The impact of SnMnO_2 TCO and Cu_2O as an HTL on CIGSSe solar cell performance improvement	Journal of Computational Electronics	22	1107-1127	2023
9	Raushan Kumar, Alisha Priya, Amit Prakash, Shiva Nand Singh	Influence of SnMnO_2 window layer on enhancing the performance of CIGSSe thin-film solar cell	optik	268	169662	2022
10	Raushan Kumar, Alisha Priya, Akhilesh Kumar	Effect of perovskite HTL on the efficiency enhancement of CIGSSe photovoltaics cell	Materials Today: Proceedings			2023
11	Raushan Kumar, Sahadev RoY, C.T. Bhunia	Low-Power High-Speed Double Gate 1-bit Full Adder Cell	International Journal of Electronics and Telecommunications	62	329-334	2016
12	Raushan Kumar, Alisha Priya, Pankaj Kumar	Exploration of physical, optical, and electrical properties of Mg-doped CeO_2 nanoparticles for photovoltaic device applications	High Energy Chemistry	Accepted		2024

13. Detail of patents.

Sr.No	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/Country	Status
1	Method for Developing Miniaturized Quad-Band Frequency Selective Surface Based On Enclosed Cross Slots	Raushan Kumar	202331015180	30/04/2024	Patent office India	Award
2	Artificial Intelligence based Solar Cell Power Smart Hat for Physically Challenged	Raushan Kumar	391464-001	27/09/2023	Patent office India	Award
3	IoT based Solar Powered Robot for agriculture	Raushan Kumar	400569-001	12/01/2024	Patent office India	Award

4	Solar Powered Device to check Nutrients in Agricultural Land	Raushan Kumar	402764-001	16/02/2024	Patent office India	Award
5	Performance enhancement of	Raushan Kumar	202331004084	21/01/2023	Patent office India	Published
	CIGSSe/perovskite solar cell with the combination of experimental data of Mg-doped CeO ₂ buffer layer					
6	Method for ultra-thin, high-efficiency CeMgO ₂ /CeMnO ₂ /A CZTSSe/perovskite solar cells for use in flexible systems	Raushan Kumar	202331026332	08/04/2023	Patent office India	Published

14. Books/Reports/Chapters/General articles etc.

Sr.No	Title	Author's Name	Publisher	Year of Publication
1	Numerical Optimization of ZnMgO/CIGS Based Heterojunction Solar Cells via Change of Buffer and BSF Layer	Raushan Kumar, Kumar Saurabh, Akhilesh Kumar	Springer, Cham.	2022
2	An efficient low-power 1-bit full adder using a multi-threshold voltage scheme	Raushan Kumar, Sahadev Roy, Arpan Bhattacharyya	Taylor Francis Group	2017

15. Any other Information (maximum 500 words)

During my Ph.D., I became an expert in the fabrication of solar cell modules. I visited numerous solar cell industries, including Tata Power Solar, Adani Solar, Vikram Solar, and Loom Solar. I also gained significant experience in clean room environments, working with equipment such as the Ellipsometry (Woollam alpha-SE) and Scanning Electron Microscope (SEM). Additionally, I have extensive experience with various characterization tools, including the UV-Vis-IR spectrophotometer (Cary 5000), AFM, X-ray diffractometer, photoluminescence (PL) instrument, and ECOPIA Hall Effect Measurement Instrument.