



Tapas K. Mallick

POSITION: Distinguished Adjunct Professor of Mechanical and Energy Engineering

Personal Data

Nationality | Indian

Date of Birth | 11-06-1973

Department | Mechanical and Energy Engineering Department, College of Engineering, Imam Abdulrahman Bin Faisal University, Dammam, 34212, Saudi Arabia

Official UoD Email | Tmallick@iau.edu.sa

Language Proficiency

Language	Read	Write	Speak
Arabic			
English	X	X	X
Others: Hindi/Benglai	X	X	X

Academic Qualifications (Beginning with the most recent)

Date	Academic Degree	Place of Issue	Address
2009	PG Certificate in Academic Practice – Fellow of Higher Education Academy of England	Heriot-Watt University, UK	Heriot-Watt University, UK
2003	PhD in Engineering	Faculty of Engineering, University of Ulster, UK	Faculty of Engineering, University of Ulster, UK
1998	Master of Technology in Energy Science and Technology	Jadavpur University, West Bengal; India.	Jadavpur University, West Bengal; India.
1996	Master of Science in Physics	Visva-Bharati University, West Bengal, India.	Visva-Bharati University, West Bengal, India
1994	Bachelor of Science (Honours in Physics)	Visva-Bharati University, West Bengal, India.	Visva-Bharati University, West Bengal, India.

PhD, Master or Fellowship Research Title: (Academic Honors or Distinctions)

PhD	Optics and Heat Transfer for Asymmetric Compound Parabolic Photovoltaic Concentrators for Building Integrated Photovoltaics
Master	Life Cycle Energy Analysis of Photovoltaic Modules and Assessment
Fellowship	Fellow of the World Society of Sustainable Energy Technologies (FWSSET)
Fellowship	Fellow of the Royal Society of Chemistry, FRSC
Fellowship	Fellow of Higher Education Academic (FHEA)



Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work	Date
Professor and Chair in Clean Technologies (Renewables)	Environment & Sustainable Institute, University of Exeter	Feb 2013 to date
Distinguished Adjunct Professor	Imam Abdulrahman Bin Faisal University, Saudi Arabia	April 2024 to date
Co-founder and Chief Scientific Advisor	BuildSolar Limited, UK, A Spin-out company from University of Exeter	April 2017 to date
Adjunct Professor in Mechanical Engineering	Indian Institute of Technology, Madras, India	May 2018 to date
Senior Lecturer in Renewable Energy	Heriot-Watt University; Edinburgh; UK	Sep 2011 to Jan 2013
Lecturer in Renewable Energy	Heriot-Watt University; Edinburgh; UK	Sep 2007 to Aug 2011
Research Fellow	Research Fellow; Warwick University, UK	Nov 2006 to Aug 2007
Research Associate	Research Associate; University of Ulster, UK	Oct 2002 to Nov 2006
Research Assistant	Research Assistant; University of Ulster, UK	Feb 2002 to Sep 2002

Administrative Positions Held: (Beginning with the most recent)

Administrative Position	Office	Date
Group Leader	Solar Energy Research Group; Environmental and Sustainability Institute. Faculty of Environment Science and Economy; University of Exeter.	Feb 2013 to Date
Academic Lead of Renewable Energy	Renewable Energy; College of Engineering Mathematics and Physical Science	June 2015 to Nov 2019
Director of Research	Renewable Energy; College of Engineering Mathematics and Physical Science	June 2015 to Nov 2019
EPSRC strategic group member	College of Engineering Mathematics and Physical Science; University of Exeter.	2016-2020
Exeter 2050 Working group	University of Exeter	2014-2018
Programme Director for MSc in Energy	Heriot-Watt University; UK	2010-2013
Programme Director for MSc in Renewable Energy Engineering	Heriot-Watt University; UK	2007-2010

Scientific Achievements

Published Refereed Scientific Researches

(In Chronological Order Beginning with the Most Recent)

Refereed Scientific Research Papers Accepted for Publication



Patent

- P2** Baig H, Williams J., and Mallick T K., Oct 2018, Construction block with photovoltaic device, GB2561369 (Granted). Patent of the Month, Feb 2020, Materials World Magazine, bit.ly/37MTGDe.
- P1** **Mallick T K.**, Sellami N., 2012, Optical Concentrator and associated Photovoltaic Devices, UK PCT/GB2012/053221.

Book

- B1** Sundaram S., Benson D., **Mallick T K.**, 2016, "Solar Photovoltaic Technology Production: potential environmental impacts and implications for governance", Elsevier Publications, ISBN: 978-0-12-802953-4.

Book Chapters

- BC7** Khalid
- BC6** Roy
- BC5** Velusamy S., Roy A., Sundaram S., Mallick T K., 2022, Concern for Heavy Metal-ion Water Pollution: Their Strategic Detection and Removal Opportunities, Legacy, Pathogenic and Emerging Contaminants in the Environment published by Routledge, Taylor, and Francis. SBN 9781032162799.
- BC4** Baig H., Brahma H., Mallick T K., Sarmah N., 2017, Technological development for capturing regeneration, standardisation and storage of Solar Energy, Sustainable biofuels development in India, Springer International Publishing.
- BC3** Ali I M S., Reddy K S., and **Mallick T K.**, 2015, Renewable Energy in the Service of Mankind, Springer, Chapter – 71, Indoor Experimental Investigations of Two Different Static 3-D Solar Concentrators.
- BC2** Shanks K., Sundaram S., **Mallick T K.**, 2015, "High Concentrator Photovoltaics", Springer International Publishing, ISBN: 978-3-319-15038-3, Chapter 4, 85-113.
- BC1** Chemisana D and **Mallick TK.**, 2013, Solar Energy Sciences and Engineering Applications, CRC Press, ISBN-9781138000131, "Chapter Title: Building Integrated Concentrated Solar Systems".

Peer Reviewed Journal Articles

- J272.** Alzahrani M M., Shanks K., Chanchangi Y., Cameron W J., Maatallah T S., Mallick T K., 2024, Record high solar concentration ratio for photovoltaics: Experimental validation for achieving effective concentration of >1200 suns, *Solar Energy*, 271, 112427, Doi: <https://doi.org/10.1016/j.solener.2024.112427>.
- J271.** Li X., Li K., Sun Y., Wilson R., Peng J., Shanks K., Mallick T., Wu Y., 2024, Comprehensive investigation of a building integrated crossed compound parabolic concentrator photovoltaic window system: Thermal, optical and electrical performance, *Renewable Energy*, 223, 119791, Doi: <https://doi.org/10.1016/j.renene.2023.119791>.
- J270.** Constantinou S., Al-Naemi F., Alrashidi H., Mallick T., Issa W., 2024, A review on technological and urban sustainability perspectives of advanced building-integrated photovoltaics, *Energy Science & Engineering*, 12 (3), 1265-1293, Doi: <https://doi.org/10.1002/ese3.1639>.
- J269.** Cameron W J., Alzahrani M M., Yule J., Shanks K., Reddy K S., Mallick T K., 2024, Effects of partial shading on thermal stress and exergetic efficiency for a high concentrator photovoltaic, *Energy*, 288, 129818, Doi: <https://doi.org/10.1016/j.energy.2023.129818>.
- J268.** Valsalakumar S., Bhandari S., Mallick T K., Hinshelwood J and Sundaram S., 2024, Experimental Validation of Optimized Solar Cell Capacitance Simulation for Rheology-Modulated Carbon-Based Hole Transport Layer-Free Perovskite Solar Cell, *Advanced Energy & Sustainability Research*, Doi: <https://doi.org/10.1002/aesr.202300244>.
- J267.** Arshad A., Roy A., Mallick T K., Tahir A A., 2023, Shape-Stabilized PEGylated Silica Aerogel-Composite as an Energy Saving Building Material, *Ind. Eng. Chem. Res.*, 62(47), 20236-20250, Doi: <https://doi.org/10.1021/acs.iecr.3c02373>.
- J266.** Cameron W J., Alzahrani M M., Yule J., Shanks K., Reddy K S., Mallick T K., 2023, Indoor experimental analysis of Serpentine-Based cooling scheme for high concentration photovoltaic thermal systems, *Applied Thermal Engineering*, 234, 121183, Doi: <https://doi.org/10.1016/j.applthermaleng.2023.121183>.
- J265.** Cameron W J., Alzahrani M M., Yule J., Shanks K., Reddy K S., Mallick T K., 2023, Outdoor experimental validation for ultra-high concentrator photovoltaic with serpentine-based cooling system, *Renewable Energy*, 215, 118926, Doi: <https://doi.org/10.1016/j.renene.2023.118926>.
- J264.** Al-Fartoos M M R., Roy A., Mallick T K., Tahir A A., 2023, Advancing Thermoelectric Materials: A Comprehensive Review Exploring the Significance of One-Dimensional Nano Structuring, *Nanomaterials*, 13(13), Doi: <https://doi.org/10.3390/nano13132011>.
- J263.** Chanchangi Y N., Adu F., Ghosh A., Sundaram S., Mallick T K., 2023, Nigeria's energy review: Focusing on solar energy potential and penetration, *Environment, Development and Sustainability*, 25, 5755-5796, Doi: <https://doi.org/10.1007/s10668-022-02308-4>.
- J262.** Velusamy S., Roy A., Mariam E., Krishnamurthy S., Sundaram S., Mallick T K., 2023, Effectual visible light photocatalytic reduction of para-nitro phenol using reduced graphene oxide and ZnO composite, *Nature Scientific Reports*, 13 (9521), Doi: <https://doi.org/10.1038/s41598-023-36574-7>.
- J261.** Khalid M., Mallick T K., 2023, Stability and performance enhancement of Perovskite Solar Cells: A Review, *Energies*, 16(10), 4031, Doi: <https://doi.org/10.3390/en16104031>.
- J260.** Valsalakumar S., Roy A., Mallick T K., Hinshelwood J., Sundaram S., 2023, Mesoporous TiO₂-layer's rheological impact on the perovskite solar cell performance, *Materials Letters*, 337, 133960, Doi: <https://doi.org/10.1016/j.matlet.2023.133960>.
- J259.** Bhandari S., Mallick T K., Sundaram S., 2023, Enlightening the temperature coefficient of triple mesoscopic CH₃NH₃PbI_{3-x}Cl_x/NiO and double mesoscopic CsFAMAPbI_{3-x}Br_x/CuSCN carbon perovskite solar cells, *Journal of Physics: Energy*, 5, 025006, Doi: <https://doi.org/10.1088/2515-7655/acc3c2>.
- J258.** Roy A., Ding B., Khalid M., Alzahrani M., Ding Y., Tahir A A., Sundaram S., Kinge S., Asiri A M., Slonopas A., Dyson P J., Nazeeruddin M K., Mallick T K., 2023, Certified high-efficiency "large-area" perovskite solar module for Fresnel lens-based concentrated photovoltaics, *iScience*, 26, 106079, Doi: <https://doi.org/10.1016/j.isci.2023.106079>.
- J257.** Bhandari S., Valsalakumar S., Chanchangi Y., Selvaraj P., Mallick T K., 2023, Effect of novel graphitic carbon/NiO hole transporting electrode on the photovoltaic and optical performance of semi-transparent perovskite solar cells, *RSC Advances*, 13, 7380-7384, Doi: <https://doi.org/10.1039/D2RA08198A>.
- J256.** Roy A., Mohamed M J S., Gondal M A., Mallick T K., Tahir A A., Sundaram S., 2023, Co-sensitization effect of N719 dye with Cu doped CdS colloidal nanoparticles for dye sensitized solar cells, *Inorganic Chemistry Communications*, 148, 110298. Doi: <https://doi.org/10.1016/j.inoche.2022.110298>.
- J255.** Sadhukhan P., Roy A., Bhandari S., Mallick T K., Das S., Sundaram S., Achieving high open circuit voltage for hole transport layer free ambient perovskite solar cells utilising electric double layer effect, *Solar Energy Materials and Solar Cells*, 251, 112148, Doi: <https://doi.org/10.1016/j.solmat.2022.112148>.
- J254.** Valsalakumar S., Roy A., Mallick T K., Hinshelwood J., Sundaram S., 2023, An overview of current printing technologies for large-scale Perovskite solar cell development, *Energies*, 16(1), 190. Doi: <https://doi.org/10.3390/en16010190>.
- J253.** Al-Fartoos M M R., Roy A., Mallick T K., Tahir A A., 2022, A short review on thermoelectric glazing for sustainable built environment, *Energies*, 15(24), 9589. Doi: <https://doi.org/10.3390/en15249589>.



- J252.** Parthiban A., Baig H., Mallick T K., Reddy K S., Performance investigation of SUNTRAP module for different locations: An energy and exergy analysis, 2022, 199, 140-156. Doi: <https://doi.org/10.1016/j.renene.2022.07.160>.
- J251.** Albadan H I., Alwabsi A., Alsagrey A M., AlKhulaif F H., Abdelgawad M E., AlQahtani N J., Al-Malki A., Alfahad A., Alrubaian W S., Alsahli F M., Mallick T K., 2022, Usage of CuO in Dye-Sensitized solar cells and CuO-based dyesensitized solar cells: A review, IEEE Journal of Photovoltaics, 12, 6, 1445-1452. Doi: [10.1109/JPHOTOV.2022.3196812](https://doi.org/10.1109/JPHOTOV.2022.3196812).
- J250.** Roy A., Ullah H., Alzahrani M., Ghosh A., Mallick TK., Tahir AA., 2022, Synergistic effect of paraffin incorporated In₂O₃:ZnO multi-fold composite smart glazing for the self-cleaning and energy-saving built environment, ACS Sustainable Chemistry & Engineering, 10, 20, 6609-6621. Doi: <https://doi.org/10.1021/acssuschemeng.2c00260>.
- J249.** Roy A., **Mallick T K.**, Tahir AA., 2022, An optimal climate-adaptable hydrogel-filled smart window for the energy-saving built environment, Journal of Materials Chemistry C, 10(41), 15474-15482. DOI:[10.1039/D2TC03254F](https://doi.org/10.1039/D2TC03254F).
- J248.** Chanchangi Y., Ghosh A., Sundaram S., **Mallick T K.**, 2022, Soiling mapping through optical losses for Nigeria, Renewable Energy, 197, 995-1008. Doi: <https://doi.org/10.1016/j.renene.2022.07.019>.
- J247.** Cameron W J., Reddy K S., **Mallick T K.**, 2022, Review of high concentration photovoltaic thermal hybrid systems for highly efficient energy cogeneration, Renewable and Sustainable Energy Reviews, 163, 112512, Doi: <https://doi.org/10.1016/j.rser.2022.112512>.
- J246.** Bhandari S., Roy A., **Mallick T K.**, Sundaram S., 2022, Morphology modulated brookite TiO₂ and BaSnO₃ as alternative electron transport materials for enhanced performance of carbon perovskite solar cells, Chemical Engineering Journal, 137378, Doi: <https://doi.org/10.1016/j.cej.2022.137378>.
- J245.** Sheikh M S., Ghosh A., Roy A., Bhandari S., Sundaram S., **Mallick T K.**, Ghosh H., Sinha T P., 2022, High open-circuit voltage in double perovskite oxide A₂NdSbO₆ (A=Ba, Sr) photoanode-based dye-sensitized solar cells, Journal of Electronic Materials, 51:4281-4287, Doi: <https://doi.org/10.1007/s11664-022-09681-w>.
- J244.** Roy A., Ullah H., Ghosh A., **Mallick T K.**, Tahir A A., 2022, Smart glazing thermal comfort improvement through near-infrared shielding paraffin incorporated SnO₂-Al₂O₃ composite, Construction and Building Materials, 331, 127319, Doi: <https://doi.org/10.1016/j.conbuildmat.2022.127319>.
- J243.** Roy A., Ullah H., Alzahrani M., Ghosh A., **Mallick T K.**, Tahir A A., 2022, Synergetic effect of paraffin-incorporated In₂O₃/ZnO multifold smart glazing composite for the self-cleaning and energy saving built environment, ACS Sustainable Chemistry & Engineering, 10, 6609-6621, Doi: <https://doi.org/10.1021/acssuschemeng.2c00260>.
- J242.** Nundy S., Tatar D., Kojcinovic J., Ullah H., Ghosh A., **Mallick T K.**, Meinsch R., Smarsly B M., Tahir A A., Djerdj I., 2022, Bandgap engineering in novel fluorite-type rare earth high-entropy oxides (RE-HEOs) with computational and experimental validation for photocatalyst water splitting applications, Advanced Sustainable Systems, 2200067, Doi: <https://doi.org/10.1002/adsu.202200067>.
- J241.** Nundy S., Ramaraj S G., Muruganathan M., Ghosh A., Tahir A A., **Mallick T K.**, Park J S., Lee H J., 2022, Development of morphologically engineered flower-like hafnium-doped ZnO with experimental and DFT validation for low-temperature and ultrasensitive detection of NO_x gas, Industrial & Engineering Chemistry Research, 61, 5885-5897, Doi: <https://doi.org/10.1021/acs.iecr.2c00890>.
- J240.** Chanchangi Y N., Adu F., Ghosh A., Sundaram S., **Mallick T K.**, 2022, Nigeria's energy review: focussing on solar energy potential and penetration, Environment, Development and Sustainability, Doi: <https://doi.org/10.1007/s10668-022-02308-4>.
- J239.** Han Y., Yang Y., **Mallick T.**, Wen C., 2022, Nanoparticles to enhance melting performance of phase change materials for thermal energy storage, Nanomaterials, 12, 1864, Doi: <https://doi.org/10.3390/nano1211864>.
- J238.** Velusamy S., Roy A., Sundaram S., **Mallick T K.**, 2022, Employing CdS nanoparticles as an adsorbent for the removal of different dosages of hexavalent Cr(VI) from aqueous solution, Materials Letters, 311, 131602.
- J237.** Bhandari S., Ghosh A., Roy A., **Mallick T K.**, Sundaram S., 2022, Compelling temperature behaviour of carbon-perovskite solar cell for fenestration at various climates, Chemical Engineering Journal Advances, 10, 100267.
- J236.** Alrashidi H., Issa W., Sellami N., Sundaram N., **Mallick T.**, 2022, Thermal performance evaluation and energy saving potential of semi-transparent CdTe in Façade BIPV, Solar Energy, 232, 84-91.
- J235.** Faisal NH., Ahmed R., Sellami N., Parthuru A., Njuguna J., Venturi F., Hussain T., Nezhad H Y., Katiyar N K., Goel S., Upadhyaya H., Joshi S., Muhammad-Sukki F., Prabhu R., **Mallick T.**, Whittow W., Kamnis S., 2022, Thermal spray coatings for electromagnetic wave absorption and interference shielding: A review and future challenges, Advanced Engineering Materials, 2200171, Doi: <https://doi.org/10.1002/adem.202200171>.
- J234.** Zhang W., Li J., Xie L., Hao X., **Mallick T.**, Wu Y., Baig H., Shanks K., Sun Y., Yan X., Tian H., Li z., 2022, Comprehensive analysis of electrical-optical performance and application potential for 3D concentrating photovoltaic window, Renewable Energy, 189, 369-382.
- J233.** Chandan., Baig H., Tahir A A., Reddy K S., **Mallick T K.**, Pesala B., 2022, Performance improvement of a desiccant based cooling system by mitigation of non-uniform illumination on the coupled low concentrating photovoltaic thermal units, Energy Conversion and Management, Vol. 257, pp. 115438.
- J232.** Khanna S., Singh P., Mudgal V., Newar S., Sharma V., Becerra V., Reddy KS and **Mallick T K.**, 2022, Novel thermal conductivity enhancing containers for performance enhancement of solar photovoltaics system integrated with phase change materials, Energy, 243, 122923, Doi: <https://doi.org/10.1016/j.energy.2021.122923>.



- J231.** Enaganti P K., Bhattacharjee A., Ghosh A., Chanchangi Y N., Chakraborty C., **Mallick T K.**, Goel S., 2022, Experimental investigation for dust build-up on low-iron glass exterior and its effects on the performance of solar PV systems, *Energy*, 239, 122213.
- J230.** Khalid M., Roy A., Bhandari S., Selvaraj P., Sundaram S., **Mallick T K.**, 2022, Opportunities of copper addition in $\text{CH}_3\text{NH}_3\text{PbI}_3$ perovskite and their photovoltaic performance evaluation, *Journal of Alloys and Compounds*, 895, 162626.
- J229.** Parthiban A., **Mallick T K.**, Reddy K S., 2022, Integrated optical-thermal-electrical modelling of compound parabolic concentrator based photovoltaic-thermal system, *Energy Conversion and Management*, 251, 115009.
- J228.** Bhandari S., Roy A., Ali M S., **Mallick T K.**, Sundaram S., 2021, Cotton soot derived carbon nanoparticles for NiO supported processing temperature tuned ambient perovskite solar cells, *Scientific Reports*, 11, 23388.
- J227.** Sadhukhan P., Roy A., Sengupta P., Das S., **Mallick T K.**, Nazeeruddin M K., Sundaram S., 2021, The emergence of concentrator photovoltaics for perovskite solar cells, *Applied Physics Reviews*, vol. 8, issue 4, <https://doi.org/10.1063/5.0062671>.
- J226.** Mudgal V., Singh, P., Khanna S., Pandey C., Becerra V., **Mallick T K.**, Reddy K S., 2021, Optimisation of a novel hybrid wind bio battery solar photovoltaic system integrated with phase change material, *Energies*, 14, 6373.
- J225.** Ahmed A., Shanks K., Sundaram S., **Mallick T.**, 2021, Energy and exergy analyses of new cooling schemes based on a serpentine configuration for a high concentrator photovoltaic system, *Applied Thermal Engineering*, 199, 117528.
- J224.** Alzahrani M., Ahmed A., Shanks K., Sundaram S and **Mallick T.**, 2021, Optical component analysis for ultrahigh concentrated photovoltaic system (UHCPV), *Solar Energy*, 227, pp. 321-333.
- J223.** Sengupta S., Ghosh A., **Mallick T K.**, Chanda C K., Saha H., Bose I., Jana J., Sengupta S., 2021, Model based generation prediction on SPV power plant due to weather stressed soiling, *Energies*, 14, 5305, <https://doi.org/10.3390/en14175305>.
- J222.** Chanchangi Y N., Ghosh A., Baig H., Sundaram S., **Mallick T K.**, 2021, Soiling on PV performance influenced by weather parameters in Northern Nigeria, *Renewable Energy*, 180, pp. 874-892.
- J221.** Hemaida A., Ghosh A., Sundaram S., **Mallick T K.**, 2021, Simulation study for a switchable adaptive polymer dispersed liquid crystal smart window for two climate zones (Riyadh and London), *Energy & Buildings*, 251, 111381.
- J220.** Roy A., Bhandari S., Sundaram S., **Mallick T K.**, 2021, Intriguing $\text{CeO}_2\text{-TiO}_2$ hybrid nanostructured photoanode resulting up to 46% efficiency enhancement for dye-sensitized solar cells, *Materials Chemistry and Physics*, 272, 125036.
- J219.** Roy A., Ghosh A., Ullah H., Baig H., Sundaram S., Tahir A., and **Mallick T.**, 2021, Understanding the semi-switchable thermochromic behaviour of mixed halide hybrid perovskite nanorods, *The Journal of Physical Chemistry C*, 125, 32, pp.18058-18070.
- J218.** Sheikh M. S., Roy A., Dutta A., Sundaram S., **Mallick T** and Sinha T., 2021, Nanostructured Perovskite Oxides for Dye-Sensitized Solar Cells, *Journal of Physics D: Applied Physics*, 54, 493001.
- J217.** Chanchangi Y N., Ghosh A., Sundaram S., **Mallick T K.**, 2021, Angular Dependencies of Soiling Loss on Photovoltaic Performance in Nigeria, *Solar Energy*, 225, pp. 108-121.
- J216.** Nundy S., Ghosh A., Nath R., Paul A., Tahir A., **Mallick T K.**, 2021, Reduced Graphene Oxide (rGO) Aerogel: Efficient adsorbent for the elimination of Antimony (III) and (V) from wastewater, *Journal of Hazardous Materials*, 420, 126554.
- J215.** Bhattacharjee A., Samanta H., Ghosh A., Barivure S M., **Mallick T.**, Saha H., Sengupta S., Abusara M., 2021, Optimized Integration of Hybrid Renewable Sources with Long Life Battery Energy Storage In Microgrids for peak power shaving and energy security under different Tariff scenario, *Energy Technology*, <https://doi.org/10.1002/ente.202100199>.
- J214.** Chanchangi Y N., Roy A., Ghosh A., Sundaram S., **Mallick T K.**, 2021, In-situ assessment of photovoltaic soiling mitigation techniques in northern Nigeria, *Energy Conversion and Energy Management*, 244, 114442.
- J213.** Alzahrani M M., Roy A., Sundaram S., **Mallick T K.**, 2021, Inspection of thermal stress arises for graphene neutral density filter in concentrated photovoltaic system, *Energies*, 14(12), 3515, <https://doi.org/10.3390/en14123515>.
- J212.** Sharma S., Sellami N., Tahir A., **Mallick T K.**, 2021, Performance improvement of a CPV system: Experimental Investigation into passive cooling with phase change materials, *Energies*, 14(12), 3550, <https://doi.org/10.3390/en14123550>.
- J211.** Faisal F H., Sellami N., Venturi F., Hussain T., **Mallick T.**, Muhammad-Sukki F., Bishop A., Upadhyaya H., Katiyar N K., Goel S., 2021, Large scale manufacturing route to metamaterial coatings using thermal spray techniques and their response to solar radiation, *Emergent Materials*; DoI: <https://doi.org/10.1007/s42247-021-00252-z>.
- J210.** Khalifeeh R., Alrashidi H., Sellami N., **Mallick T.**, and Issa W., 2021, State-of-the-art review on the energy performance of semi-transparent building integrated photovoltaic across a range of different climatic and environmental conditions, *Energies*, 14, 3412, DoI: <https://doi.org/10.3390/en14123412>.
- J209.** Nundy S., Ghosh A., Tahir A., **Mallick T K.**, 2021, Role of hafnium doping on wetting transition tuning the wettability properties of ZnO and doped thin films: Self-cleaning coating for solar application, *ACS Applied Materials & Interfaces*, 13, pp. 25540-25552.
- J208.** Khalid M., Roy A., Bhandari S., Sundaram S., and **Mallick T K.**, 2021, Integrating concentrated optics for ambient perovskite solar cells, *Energies*, 14(9), 2714; <https://doi.org/10.3390/en14092714>.
- J207.** Roy A., Sundaram S., **Mallick T K.**, 2021, Effect of dye sensitization's temperature on ZnO-based solar cells, *Chemical Physics Letters*, 776, 138668.



- J206.** Li J., Zhang W., He B., Xie L., Hao X., **Mallick T.**, Shanks K., Chen M., Li Z., 2021, Experimental study on the comprehensive performance of building curtain wall integrated compound parabolic concentrating photovoltaic, *Energy*, 227, 120507, <https://doi.org/10.1016/j.energy.2021.120507>.
- J205.** Roy A., Ghosh P., Devi P.S., Sundaram S., **Mallick T K.**, 2021, Efficient carbon counter electrodes for BaSnO₃ based dye-sensitized solar cells, *Materials Today: Proceedings*, 45, pp. 3685-3691.
- J204.** Velusamy S., Roy A., Sundaram S., and **Mallick T K.**, 2021, A review of heavy metal ions and containing dyes removal through Graphene Oxide-based adsorption strategies for textile wastewater treatment, *The Chemical Record*, <https://doi.org/10.1002/tcr.202000153>.
- J203.** Alzahrani M., Roy A., Shanks K., Sundaram S., and **Mallick TK.**, 2021, Graphene as a pre-illumination cooling approach for a concentrator photovoltaic (CPV) System, *Solar Energy Materials and Solar Cells*, 222, 110922.
- J202.** Singh P., Khanna S., Mudgal V., Newar S., Sharma V., Sundaram S., Reddy K S., **Mallick T K.**, Becerra V., Hutchinson D., Radulovic J., Khusainov R., 2021, Three-dimensional analysis of dye-sensitized, perovskite and monocrystalline silicon solar photovoltaic cells under non uniform solar flux, *Applied Thermal Engineering*, 182, 115613.
- J201.** Ahmed A., Zhang G., Shanks K., Sundaram S., Ding Y., **Mallick T.**, 2021, Performance evaluation of single multi-junction solar cell for high concentrator photovoltaics using minichannel heat sink with nanofluids, *Applied Thermal Engineering*, 182, 115868.
- J200.** Alzahrani M., Shanks K., **Mallick T K.**, 2021, Advances and limitations of increasing solar irradiance for concentrating photovoltaic thermal system, *Renewable and Sustainable Energy Reviews*, 138, 110517.
- J199.** Khalid M., Shanks K., Ghosh A., Tahir A., Sundaram S., and **Mallick T K.**, 2021, Temperature regulation of concentrating photovoltaic window using Argon gas and Polymer Dispersed Liquid Crystal Films, *Renewable Energy*, 164, 96-108.
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- C83.** Sellami N., Meng X., Xia X L., Knox A., and **Mallick T K.**, 2015, "Optical and Heat Transfer Performance of a Novel Non-imaging Concentrator", CPV-11, 13-15th April, 2015, France.
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- C51.** Theristis M., Arnaoutakis G., Sarmah N., **Mallick T K.**, O'Donovan T S., 2013, "Solar Spectrum Dependent Thermal Model for HCPV System", 13th UK Heat Transfer Conference, UKHTC-2103, 2-3rd September, 2013, London.
- C50.** Abu-Bakar, S.H., Muhammad-Sukki, F., Ramirez-Iniguez, R., Burek, S., **Mallick, T K.**, MacLennan, C., Munir, A.B. & Mohd Yasin, S.H., 2013. "Renewable Heat Incentive for Domestic Sector in the United Kingdom", 4th International Youth Conference on Energy 2013, Siofok, Hungary.
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- C34.** Sellami N., **Mallick T K.**, McNeil D., 2011, "Optical Characterisation of 3-D Static Solar Concentrator", International Renewable Energy Congress., 20-22nd December 2011., Hammamet, Tunisia.
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- C26.** Natarajan S K, Katz M, Ebner R, Weingaertner S, Wiechers O, Cole A, Wertz R, and **Mallick T K.**, 2011, "Validated Thermal Model for CPV System", 7th International Conference on Concentrating Photovoltaic Systems, Las Vegas, USA.
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- C18.** **Mallick T K.**, and Eames P C, 2008, "Thermal Performance Predictions of a Low Concentrating Line-Axis and a High Concentrating Point Focus Photovoltaic System", World Renewable Energy Congress, UK. (**Invited**)



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- C15.** **Mallick T K.**, and Eames P C., 2007, "Optical performance predictions for a high concentration point focus photovoltaic system", International Conference on Solar Concentrators-4, Spain.
- C14.** Eames P C and **Mallick T K.**, 2007, "The prediction of the thermal behaviour of a low concentration non-imaging asymmetric dielectric concentrator for building façade applications", International Conference on Solar Concentrators-4, Spain.
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- C11.** **Mallick T K.**, Eames P C., and Norton B., 2005, "Validation of A Unified Comprehensive Model for A Photovoltaic Concentrator", 20th European Photovoltaic Solar Energy Conference and Exhibition, Barcelona, Spain, pp. 472-475.
- C10.** Sala G., Pachon, D., Anton I., Vivar M., Moring H. D., Morilla C., Fernandez J. M., Martinelli G., Stefancich M., Malagu C., Eames P C., **Mallick T K.**, Luque I., 2005, "IDEOCONTE Project: Searching the Best Si-Cells PV Concentrator", 20th European Photovoltaic Solar Energy Conference and Exhibition, Barcelona, Spain, 2360-2363.
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Scientific Research Papers Presented to Refereed Specialized Scientific Conferences



Completed Research Projects

1. **Wu Y., Eames PC, Mallick TK.**, “Advanced building façade design for optimal delivery of end use energy demand”, EPSRC (EP/S030786/1), £1.65m, **Exeter Share - £681k, Exeter-PI**, 1st July 2019 to 30th June 2024. **Mallick T K.**, Sustainable Dairy farming in India, EPSRC IAA, £35k, PI, April 2023 – March 2024.
2. Mann C and **Mallick T K**, Energy Independent Farming, ERDF, £1.2m, **Exeter Share - £367k, Exeter-PI**, June 2019 – May 2022
3. Thomson M., **Mallick TK.**, et al., “Joint UK-India Clean Energy Centre (JUICE)” EPSRC (EP/P003605/1); £6.25m; Exeter Share - **£703k; Exeter-PI**; Oct 2016 to March 2022.
4. **Mallick TK** and Abusara M, “Spectral dependent unified soiling losses of PV farms in India”, EPSRC, £124k, **PI**, Jan 2020-March 2022.
5. Sundaram S and Mallick TK, “Power control unit and rigorous testing of thin film BIPV (PC-Rig)”, EPSRC, **£121k**, Jan 2020 – March 2022
6. X Li., **Mallick TK** and Tahir A., CI, “E2C: Electrons to high value Chemical products”, EU-EDRF, €7.185m, Exeter Share €840 (Mallick Share – 15%), Sep 2018 to Aug 2021.
7. Y Zhu et al., “nano-Structured PCM Composites for Compact Space Heating: n-CoSH” EPSRC (EP/P003435/1); £1.13m, Exeter Share - £385k; **Mallick share - £70k**, Oct 2016 to Dec 2019.
8. Javadi A., and **Mallick TK.**, Solar-powered desalination system for sustainable water management in Mediterranean region; British Council Newton-Mosharafa Institutional Links funds (SH-08344), **£155k**, Oct 2018 to Sep 2020.
9. Pesala, B., Reddy KS and **Mallick TK.**, “Non-imaging optics based low concentrating photovoltaic thermal (LCPVT) hybrid system”, DST(DST/TM/SERI/C278(G)), India, INR 86.86 lakh, Aug 2016 to July 2019.
10. X Li et al., “Zinc-Nickel Redox Flow Battery for Energy Storage” EPSRC (EP/P003494/1); £1.03m; Exeter Share - £375k; **Mallick share - £60k**, Oct 2016 to Nov 2019.
11. Baig H and **Mallick TK.**, “Performance and Commercial Value Demonstration of Solar Squared”, EPSRC-IAA Award, **£35k, CI**, 1st March 2018 to 30th Nov 2018.
12. Ghosh A; Sundaram S; **Mallick T K** (Mentor); EPSRC Impact Acceleration Award, **£67k**
13. **Mallick TK et al.**, Embedded systems for Integrated Photovoltaics in Rural Buildings: E-IPB, Innovate UK (71208-481703), **£950k, PI**, 1st April 2017 to 31st March 2019
14. B Pal and **T Mallick.**, “Reliable and Efficient System for Community Energy Solution- RESCUES” EPSRC (EP/K03619X/1); £1.1m; Exeter Share - **£596k; Exeter-PI**; 1st Feb 2014 to 31st March 2018.
15. Knox A., **Mallick TK.**, et al., “Scalable Solar Thermoelectrics and Photovoltaics SUNTRAP”, EPSRC (EP/K022156/1), £2.5m; Exeter Share - **£632k, Exeter-PI**; 30th Sep 2013 to 30th Oct 2017.
16. **Mallick TK.**, “International and Industrial Engagement Fund”, SUPERGEN SuperSolar, **£10k**, July 2015 – Nov 2017; **PI**.
17. **Mallick TK.**, “International and Industrial Engagement Fund”, SUPERGEN SuperSolar, **£16k**, July 2016 – Nov 2017; **PI**.
18. **Mallick TK.**, Solar Squared Project, EPSRC-IAA Award, **£35k, PI**, Oct 2016 to March 2017.
19. **Mallick TK.**, “Sustainable energy production through biomass gasification integrated with solar thermal conversion” British Council UKIERI (IND/CONT/E/13-14/627), **£72k, PI**; June 2014-December 2016.
20. **Mallick TK** et al., “Development and Integration of Biomass and Concentrating Photovoltaic System for Rural and Urban Energy Bridge: BioCPV”; EPSRC (EP/J000345/1); UK-India Overall **£2.9m; (UK-PI and Exeter-PI)**; Exeter share **£542k** – Nov 2011 – July 2016.
21. **Mallick TK.**, “Solar Performance Mapping and Operational Yield Forecasting”, TSB (Application No: 36309-270211), **£110k**, May 2014-April 2015.
22. **Mallick TK.**, Innovation 2 Commercialisation (I2C) for Solar Concentrator Limited, SetSquared, **£50k**, Oct 2014 – Feb 2015.



23. **Mallick TK.**, “Non-uniform modelling of concentrating solar cell”, Energy Technology Partnership (113615), **£80k** (40% industrial contribution), **PI**, May 2011 – Oct 2014.
24. Richards BS., **Mallick T.**, Wilson JIB, “Luminescent Lanthanide Layers for Enhanced Photovoltaic Performance”, EPSRC-CAS (UK-China), **£712k (CI)**, Feb 2011-July 2014
25. **Mallick T.**, “Building Integrated Concentrating Enhanced Photovoltaic Thermal System: BICEPT”, EPSRC 1st Grant (EP/G030820/1), **£174k (PI)** – Oct 2009-Sep 2012
26. **Mallick T.**, “Active Solar Panel Initiative”, EU/FP7 (226267): **€280k (PI)**; Jan 2009-Dec 2011
27. O’Donovan T., **Mallick T.**, “Development of a solar concentrator for solar-water desalination”, UK-India Education & Research Initiative (SA08-061), **£110k; (Co-PI)** –Jan 2009-Dec 2011
28. Wilson J., Richards, B., **Mallick T.**, “Hybrid Thin Film Solar Cells”, The Scottish Government, **£21k (CI)** – June 2010- May 2011
29. Luo Xichun., Ritchie J., **Mallick T.**, Shu Will., “Design and Fabrication on Functional Nanostructures”, The Scottish Government, **£25k (CI)** June 2010 – May 2011
30. Richards B S., **Mallick T**, Wilson J., Fruh W., “Royal Society Wolfson Laboratory Refurbishment Scheme”, £100k (Co-I and then **PI**) –Sep 2008 – Aug 2010
31. **Mallick T.**, “RSE-INSA bi-lateral exchange”; £3k (**PI**) – Sep 2008- Oct 2008

Current Researches

#	Research Title	Name of Investigator(s)
	Hydrogen Integration for Accelerated Energy Transition – HiACT HUB	Walker S., Mallick T K. , et al.,
	Energy Entrepreneurs Fund	Mallick et al.,
	British Council UK-Egypt project in solar energy	Mallick et al.,
	Smart composite materials for advanced building fenestration to enhance energy efficiency	Tahir A., Mallick et al.,

Contribution to Scientific Conferences and Symposia

Membership of Scientific and Professional Societies and Organizations

- Fellow of the Royal Society of Chemistry, **FRSC**
- Fellow of the World Society of Sustainable Energy Technologies (**FWSSET**)
- Fellow of Higher Education Academic (**FHEA**)
- Fellow of the **RSA** (Royal Society of Arts, Manufactures and Commerce; **FRSA**)
- Member of the International Solar Energy Society (**ISES**)
- Member of the Institute of Physics (**MInstP**).
- Member of Institute of Electrical and Electronics Engineers (**IEEE**)

Teaching Activities

- Solar Energy Research and Innovation (SERI) – MEng
- Solar Power – UG3 (BEng)
- Renewable Energy Systems – UG1
- Energy and Climate – UG2
- **B59ES**: Energy Studies (Yr3 Mechanical Engineering module)
- **B59EI**: Mechanical Engineering Science 9 (Fluids Laboratory; Yr-3 UG module)



- **B51DE:** Engineering design (Year-4 Mechanical Engineering module)
- **MEng** Group Project (Mechanical Engineering Module)
- **B81EZ:** Critical analysis & research preparation (PG Module)
- **UG & PG** project supervision

Brief Description of Undergraduate Courses Taught: (Course Title – Code: Description)

Postgraduate

Brief Description of Postgraduate Courses Taught: (Course Title – Code: Description)

- **B51GE:** Renewable Energy Technology (Post Graduate Module)
- **B51ET:** Foundations of Energy (Post Graduate Module)

Guest/Invited Lectures for Undergraduate Students

#	Activity/Course Title and Code	Subject	College and University or Program	Date
1	Over 60 lectures in more than twenty different countries in Europe, Asia, North America, and Africa			

Student Academic Supervision and Mentoring

#	Level	Number of Students	From	To
1	MSc/PhD	49 MSc student supervision and 20 UG supervision		

Supervision of Master and/or PhD Thesis

33 PhDs supervision – completed

14 PhD supervision ongoing

Postdoctoral researcher supervision: 14 completed and two ongoing.

Administrative Responsibilities, Committee and Community Service (Beginning with the most recent)

Editorial Board:

- Section Editor for Energy Sources in the Journal of Energies, April 2016 – to date
- Editorial Board in Future Cities and Environment, Oct 2020 – to date
- Subject Editor in Solar Thermal, IET Renewable Power Generation, June 2017 – Aug 2024.
- Editor-in-Chief of Advances in Renewable Energy (ARE), March 2015 to Sep 2017
- Guest Editor for International Journal of Energies, Sep 2015, Switzerland
- Editorial Board Member for “Advanced Energy: International Journal – AEIJ”, Jan 2013 to 2017
- Editorial Board Member for Advanced Solar Thermal Energy, Jan 2013 to 2016
- Guest Editor for International Journal of Photoenergy, 2012



Recognition/Invited Speaker/Technical Committee:

- Invited Speaker and Panel Discussion at CEN2022, 23-25th April 2022, Ningbo, China.
- Keynote Speaker at RAiSE 2021 Conference, 2nd to 4th Dec, 2021, Indian Institute of Technology, Madras, Chennai, India
- Keynote Speaker SESBT 2021, 23rd July 2021, Vellore Institute of Technology, India.
- Keynote Speaker ICoFT, 28-30th December 2020, Karaikal, India.
- Keynote speaker on UK-China Symposium on Clean Energy Utilisation, 9-10th Dec 2020 (online).
- World Society of Sustainable Energy Technologies Invited Lecture, 28th Oct 2020 (online)
- Keynote Speaker at ICAME, 16-18th January 2020, Kolkata, India.
- Scientific advisor to International conference on Numerical Heat Transfer and Fluid Flow, 2019, 2020.
- Keynote speaker on 2nd UK-China Symposium on Clean Energy Utilisation, University of Birmingham, UK, 7-9th August 2019.
- Keynote Speaker on International conference on computing, mathematics and engineering technologies, Sukkur IBA University, 2019, 2020.
- Invited speaker to Government, Educationalist and business at Saudi Arabia, 22nd to 24th April 2018.
- Member of British Standard Institution (BSI) Committee on Solar Energy (GEL/82), Since Feb 2018.
- Keynote speaker to 12th International Energy Conference, Tehran, Iran, 19-20 June 2018.
- Keynote lecture and Technical Advisor of CONSOLE-2018 conference, Glasgow, UK.
- Professorial appointment committee expert, Mechanical Engineering, Al-Balqa Applied University, Jordan, Nov, 2017
- Imam Abdulrahman Bin Faisal University, Saudi Arab, Energy Engineering program review expert, Oct, 2017
- Robert Gordon University, UK, MSC course review external expert, Nov, 2017.
- 2nd International Conference on Energy, Environment and Climate Change (ICEECC), International Scientific committee member, 2017.
- Organiser for international workshop on integrated renewables for autonomous power supply and fuel generation, University of Exeter, UK, 1-2nd August 2016
- Lead Solar Energy Scientist, Bolivian Renewables Meeting at House of Commons, UK, June, 2016
- WREC-15 conference keynote speaker, 2016.
- Organising Committee Member, International Conference on Pollution Control & Sustainable Environment – 2016, Dubai, UAE.
- Associate Professor appointment committee, Mechanical Engineering, University of Botswana, Botswana, Sep 2015.
- Professorial appointment committee, Jordan University of Science and Technology, Department of Electrical Engineering, Jordan, Jan 2015.
- Faculty review committee member, Faculty of Science and Technology, Government College University Faisalabad, Pakistan, Aug 2014.
- Sole organiser for international workshop on integrated renewable energy systems, University of Exeter, UK, June 2014
- Co-Organiser ICSET Conference, Coimbatore, India, 2014
- Solar Europe Industry Initiative (SEII) Board Member, Jan 2013 to date
- Gaziantep Energy Symposium, Gaziantep, Turkey, 9-10th October 2013, Invited Speaker
- IX Congress on Energy Efficiency, Renewable Energy & Smart Buildings, Sofia, 29-31st May 2013 – Invited Speaker
- Invited Speaker at the "International Conference and Expo on Material Science & Engineering - Material Science 2012", Chicago, USA.



- International Advisory Committee member of the International Multidisciplinary conference on solar Energy, Chennai, India, 2012
- IET Renewable Power Generation 2011 – Technical Programme Committee, UK
- Solar Energy Conclave -2010, India – International Technical Programme Committee
- Central Advisory Board Member of ENERTECH-2010, India.
- International Advisory Member of ICETEE-2010.
- Invited member of “Royal Academy of Engineering – India” Solar Energy Network, UK, 2009.
- Invited speaker for the CEE Renewable Energy, Prague, Czech Republic, 2009.
- Sterling Group visit to India: HWU representative, 2009.
- Invited speaker for the British Council’s First & Second Young Scientists Networking Conference on Low Carbon Technologies, 2009.
- Invited speaker for WREC-X conference, 2008.

Panel Member/Reviewer:

- Panel Member: EPSRC (many panels); UKRI FLF; InnovateUK; British Council and over twenty International research agencies.
- Research Proposal Reviewer: EPSRC; InnovateUK; British Council; E.ON; Royal Academy of Engineering; Ministry of Education and Science, Republic of Kazakhstan; DST, India; Ministry of Higher Education, Saudi Arabia; Estonia Research Council; European Science Foundation; National Science foundation Singapore.
- Journal Reviewer: Over 25 international journals.

Last Update

...06/10/2024