

Curriculum Vitae



Dr. S. K. Samdarshi (Ph.D. IIT, Delhi)
Professor, Department of Energy Engineering
Central University of Jharkhand, Ranchi 835205, India
Contact: +91-9431107270(M)
Email: drsksamdarshi[AT]rediffmail.com
sanjoy.samdarshi[AT]cuj.ac.in
ORCID: orcid.org/0000-0003-1725-5387
IRINS Vidwan: 108426
Google Scholar ID: Qz0ryu4AAAAJ
Scopus ID: 6603112132

Academic:

- Ph.D.(Energy) : Indian Institute of Technology, Delhi 1992
- M.Sc.(Physics): Indian Institute of Technology, Delhi 1984
- B.Sc.(Phys Hons): St Xavier's College, Ranchi 1982

Professional:

- Professor: Department of Energy Engineering, Central University of Jharkhand(CUJ), Ranchi, Jharkhand 2013-contd
- Professor: Department of Energy, Tezpur(Central) University(TU), Tezpur, Assam 2009-13
- Associate Professor/Reader: Department of Energy, Tezpur(Central) University(TU), Tezpur, Assam 2004-09
- Lecturer: School of Phys. Sc., North Maharashtra University (NMU), Jalgaon, Maharashtra 1994-04

Administrative Responsibilities:

National:

- **Convenor**, Panel of MED 04 of **Bureau of India Standards(BIS)**, New Delhi for development of standard for solar thermal cooking systems
- Invited member of Niti Aayog on the "Purvoday scheme" of **Ministry of Planning, Govt of India** (2024)
- Member, Task Force on Energy, Sector Specific Group (Energy), **Ministry of Energy, Govt of India, New Delhi** headed by DG, International Solar Alliance and Convened by Director, IIT, Delhi(since April 2024)
- Member, **Court, Central University of Jharkhand**, Ranchi (since October 2023)

- Centre Superintendent, Ranchi Centre, Central University Common Entrance Test 2020(**CUCET 2020**) from September 18-10, 2020
- Coordinator, **National Renewable Energy Fellowship(NREF), Ministry of New and Renewable Energy(MNRE), New Delhi**(since March 2019)
- Coordinator, MoU/Collaboration between CUJ, Ranchi and Centre for Environment and Energy Development(CEED), New Delhi (since June 2018)
- Director/Coordinator and Principal Investigator, **Center for Excellence in Green and Efficient Energy Technology(CoE-GEET)**established under *FAST* scheme of **Ministry of Human Resources Development New Delhi** at Central University of Jharkhand, Ranchi(since 2014-contd.)
- Member, **Governing Council, Solar Energy Society of India** (2009 - 2011)
- Member, Technical Committee, International Congress on Renewable Energy (ICORE-2009, ICORE-2010, ICORE-2011, ICORE-2012, ICORE-2013, ICORE-2014, iCON-2015)
- **Convener, International Congress on Renewable Energy (ICORE-2011)** the flagship event of Solar Energy Society of India(SES), Tezpur University, Tezpur

International

- Coordinator, MoU/Collaboration between **ISEP, ERE, John Hopkins University, USA** and Central University of Jharkhand, Ranchi, India(Jan 2020- Dec 23).
- Coordinator, MoU/Collaboration between **Solar Energy Research Centre(SERC), University of Chile, Santiago** signed in 2022.

State:

- **Invited member** for Budget Meeting of **Ministry of Finance, Government of Jharkhand, Ranchi** for two consecutive years 2022-23 and 2023-24
- Coordinator, MoU/Collaboration between **JBVNL, Ranchi** and Central University of Jharkhand, Ranchi, India signed on July 03, 2020.
- Member, **ESCR Panel of Jharkhand State Electricity Regulatory Commission (JSERC)**, Ranchi(since March 2018-contd).
-

Institutional:

- Head, Department of Energy Engineering, Central University of Jharkhand, Ranchi (since Feb 2014-Feb 2020, April 2023-contd)
- Chairman, School Board, School of Engineering and Technology, Central University of Jharkhand, Ranchi(since 2014-2020, April 2023-Contd)
- Dean, School of Engineering and Technology, Central University of Jharkhand, Ranchi(Feb 2014-Feb 2020)
- Dean, Students' Welfare, Central University of Jharkhand, Ranchi (Jan 2014-Aug 2015)
- Member, Executive Council, Central University of Jharkhand, Ranchi (2014-16)
- Chairman, Equivalence Committee, Central University of Jharkhand, Ranchi(2013-contd.)
- Head, Department of Energy, Tezpur University, Tezpur (2007 – 2010)
- Convener, Solar Energy Gadgets Installation Initiative, Tezpur University, Tezpur, Assam(2009- June 2011)
- Coordinator, Solar PV Power Plant Committee, Central University of Jharkhand, Ranchi(2013, 2021, 2023)

Academic / Research and Development Responsibilities:

National

- Coordinator, MoU/Collaboration between JBVNL, Ranchi and Central University of Jharkhand, Ranchi, India signed on July 03, 2020
- **Member(Visitor's Nominee), Academic Council, Nagaland(Central) University, Kohima**(since March 2019)
- Member, **Academic Advisory Committee, National Resource Centre for Energy Systems Engineering, IIT Bombay**(Since June 2018)
- Coordinator, MoU/Collaboration between CUJ, Ranchi and Centre for Environment and Energy Development(CEED), New Delhi (Since June 2018)
- Principal Investigator, **Centre for Excellence in Green and Efficient Energy Technology(CoE-GEET)**established under *FAST* scheme of Ministry of Human Resources Development New Delhi at Central University of Jharkhand, Ranchi(2014-contd.)
- **Adjunct Professor**, SMVD University Katra, Jammu and Kashmir, India(2017-Contd)
- Member, Academic Council, Central University of Jharkhand, Ranchi(2013-2020)
- Member, Academic Council, Tezpur University, Tezpur (2007-2013)
- Member, Board of Studies(BOS), Department of Energy, Tezpur University, Tezpur (2004 – 2013)
- Academic Program Coordinator, M.Tech.(Energy Technology) and Ph.D. courses of Department of Energy, Tezpur University, Tezpur (2004 – 2007)
- Member, Technical Committee, International Congress on Renewable Energy (ICORE-2009, ICORE-2010, ICORE-2011, ICORE-2012, ICORE-2013, ICORE-2014, iCON-2015)
- Member, Board for Research Studies, Central University of Jharkhand, Ranchi(2013-contd)
- **Editor, SESI-Journal**, Solar Energy Society of India(2014-contd)
- Referee, RGSTC Projects, North Maharashtra University, Jalgaon, 2015
- Referee, **R&D Projects, Ministry of New and Renewable Energy**, New Delhi 2015
- Examiner, Ph.D. thesis on Energy of a number of IITs, National Labs and Central and State Universities
- Member, Selection Committees of a number of **top national level institutions of eminence / central universities / State Public Service Commission**, 2009 onwards
- Member, Scrutiny Committees of top national level universities / central ministry for top executive posts, 2009 onwards
- Member, BOS, Energy Systems Engineering, **National Institute of Technology, Jamshedpur**, Jharkhand, 2015
- Member, BOS, Department of Energy Engineering, **North-Eastern Hill University(NEHU), Shillong**, Meghalaya(2013-16, 2016-19)
- Member, BOS, Department of Mechanical Engineering, **BIT, Mesra**, Ranchi(April 2018)
- Reviewer, Program structure and course content of the two-year M.Tech program in Energy and Environment Management proposed by **Centre for Energy Studies, Indian Institute of Technology, Delhi**, February 2016
- Member, Expert Visiting Committees(EVCs) of **All India Council for Technical Education(AICTE)** for approval of Engineering and Technology Institutions in India since March 2016.
- Reviewer, Syllabus of Department of Energy and Environment, **TERI University, New Delhi**(2017).
- Expert, IQAC, Sri Mata Vaishno Devi University, Katra, Jammu and Kashmir, Dec 2017

International

- Coordinator, MoU/Collaboration between **Solar Energy Research Centre(SERC), University of Chile, Santiago** signed in 2022
- Coordinator, MoU/Collaboration between **ISEP, ERE, John Hopkins University, USA** and Central University of Jharkhand, Ranchi, India(since January 2020)
- *External Assessor* for the Post of Professor in Energy for **Universiti Sains Malaysia, Penang, Malaysia**, (2015)
- *Reviewer*, Curriculum for M.Sc.(Metall. Engg) and Ph.D.(Metallurgy), **Department of Material Science and Engg., Jimma University, Ethiopia**(2014).
- *Reviewer*, International project for **Comision Nacional de Investigacion Cientifica y Tecnologica (CONICYT), Chile** from University of Tarapacá, Escuela Universitaria de Ingeniería Mecánica, Arica, Chile, South America.(2016).
- *Reviewer*, *Solar Energy*, Elsevier (2008 onwards); *Applied Energy*, Elsevier (2010 onwards); *Desalination*, Elsevier (2009 onwards); *Journal of Hazardous Materials*, Elsevier (2011 onwards); *Environmental Progress and Sustainable Energy*, AIChE, Wiley-Blackwell (2011 onwards); *Photochemistry and Photobiology C:Chemistry*, Elsevier (2011 onwards); *Environmental Science and Technology*, ACS (2012 onwards); *Materials Letters*, Elsevier(2014 onwards); *Fuel*, Elsevier(2014 onwards)

Research Area/ Interest: Solar Energy, Energy Materials, Energy Policy

- *Solar Energy*:
Experimental and theoretical (computer simulation) studies on different solar systems and applications; Solar pond; Solar cooker; Solar photoactive materials for energy conversion(photocatalytic hydrogen generation), solar carbon valorisation, solar environmental remediation; New generation organic PV cells including DSSC;
- *Energy Materials*
Synthesis of photocatalysts/materials for solar energy applications, Synthesis of CNMs from plant precursors and their applications, Synthesis of heterogeneous antioxidants;
- *Energy Policy*: Education, Energy Security, Roof Top Solar Policy, Energy Policy and Transition

Research Publications: Journal / Conferences (International: 64/47 National: 03/21)

i) Peer-reviewed journals: (* Corresponding author)

2024

1. Harsh, Tripurari Kumar, **S. K. Samdarshi**, Uday Deshpande, Neha Kumari, and Kumar Gaurav(2024) Role of phase ratio in mixed phase bismuth oxide nanoscale systems for improved visible light photocatalytic kinetics. **Ceramics International(Elsevier)**, (2024). (IF=5.1) <https://doi.org/10.1016/j.ceramint.2024.12.241>

2. P.S. Panja, **S.K. Samdarshi***, Atul A. Sagade , Md Rahbar Jamal, Inclusivity of thermal performance parameters for evaluation of solar cookers and the necessity of uniformity in the appraisal using generalized test procedure for different designs, **Sustainable Energy Technologies and Assessments (SETA) (Elsevier)**, 2024 (IF:8.0) DOI: 10.1016/j.seta.2024.103847
3. Md. Rahbar Jamal, **S.K. Samdarshi***, Mandeep Singh, Atul A Sagade, P.S. Panja, Aaquib Ullah Ansari(2024) Improvement in the opto-thermal performance of Indian standard solar box cooker by novel internal retrofit radiative control, **Solar Energy(Elsevier)**, 274, 112564, 2024(IF:6.7) DOI: 10.1016/j.solener.2024.112564

2023

4. Neha Kumari, **S K Samdarshi***, Ranjana Verma, Kumar Gaurav, Arnab S. Bhattacharyya, Kaustubha Mohanty, Uday Deshpande (2023) Superior functionality of niobium pentoxide nano-rod/tripod photocatalyst synthesized using polyethyleneimine as a soft template for the abatement of methylene blue under UV and visible irradiation, **Environmental Science and Pollution Research(Springer-Nature)**, 30 (58), 122458-122469, 2023 (IF:5.8) DOI: 10.1007/s11356-023-31001-w)
5. Kumari Neha, Tripurari Kumar Harsh, A. S. Bhattacharya, Kumar Gaurav, Ranjana Verma, **S. K. Samdarshi ***(2023) Enhanced Photocatalytic Activity of Ceria doped Zinc Oxide under UV illumination prepared via chemical precipitation, **Luminescence: The Journal of Biological and Chemical Luminescence (Wiley)**, 38 (7), 1282-1286, 2023 (IF:2.9) (DOI: <https://doi.org/10.1002/bio.4396>).

2022

6. Verma Ranjana, Jay Singh, **S.K. Samdarshi**, Anchal Srivastava (2022) Phase modulation kinetics in TiO₂ by manipulating pH: A dynamic of photoactivity at different combination of phase and pH, **Journal of Alloys and Compounds(Elsevier)**, 904, 164019 2021 (IF=6.371) DOI: 10.1016/j.jallcom.2022.164019
7. Verma Ranjana, Jay Singh, **S.K. Samdarshi**, Anchal Srivastava (2022) Autonomous self-optimizing defects by refining energy levels through hydrogenation in CeO_{2-x} polymorphism: a walking mobility of oxygen vacancy with enhanced adsorption

capabilities and photocatalytic stability, **New Journal of Chemistry(Wiley)**, 46(12), 5869-5880, 2022(IF=3.925) DOI: 10.1039/D2NJ00057A

8. Gaurav K, **SK Samdarshi***, N Kumari, AS Bhattacharyya, S Paul, and Uday Deshpande (2021) Distinct role of hexagonal tungsten in tungsten/ceria heterojunction in efficient utilization of visible flux, **Solar Energy Materials and Solar Cells(Elsevier)**, 234,111405 (IF=7.305) DOI: 10.1016/j.solmat.2021.111405

2021

9. Sagade, Atul A., **S. K. Samdarshi**, Narayani A. Sagade, and P.S.Panja(2021) Enabling open sun cooling method-based estimation of effective concentration factor/ratio for concentrating type solar cookers, **Solar Energy(Elsevier)**, October 2021, 227, 568-576(IF=7.188) DOI: 10.1016/j.solener.2021.09.035
10. Kumari Neha, Kumar Gaurav, **S K Samdarshi***, A. S. Bhattacharyya, Samrat Paul, and BijuMani Rajbongshi(2020) Dependence of photoactivity of niobium pentoxide (Nb₂O₅) on crystalline phase and electrokinetic potential of the hydrocolloid, **Solar Energy Materials and Solar cells(Elsevier)**, 208, 110408 (IF=7.305) DOI: 10.1016/j.solmat.2020.110408
11. Singh Abhay, Rahul Dev, and **S. K. Samdarshi** (2020) Performance analysis of solar energy operated crop cutting machine, **J. Indian Chem. Soc. (Scientific Pub-India)**, 97, 10(A), 1655-1661, 2020(IF=0.284)
12. Sagade Atul A., **S. K. Samdarshi**, P.J. Lahkar, Narayani A. Sagade(2020) Experimental Determination of the Thermal Performance of an Intermediate Temperature Solar Box Cooker with a Hybrid Cooking Pot, **Renewable Energy(Elsevier)**, 150, 1001-1009, Feb 2020 (IF=8.634) DOI: 10.1016/j.renene.2019.11.114

2019

13. Sagade Atul, **S.K. Samdarshi***, and Pranab J Lahkar(2019)Ensuring the Completion of Solar Cooking Process under Unexpected Reduction in Solar Irradiance, **Solar Energy(Elsevier)**, 179, 286-297 (IF=7.188) DOI: 10.1016/j.solener.2018.12.069

2018

14. Ranjith G. Nair, Swapna Ojah, P. Mathan Kumar, S.K. Nikhil, **S.K. Samdarshi*** (2018) Role of copper and silver modified titania photoanode on performance engineering of dye sensitized solar cells, **Materials Letters(Elsevier)**, 221, 313–317(IF=3.574) DOI: 10.1016/j.matlet.2018.03.150
15. Sagade Atul, **S.K. Samdarshi*** and Partha S Panja (2018) Enabling Rating of Intermediate Temperature Solar Cookers using Different Working Fluids as Test Loads and its validation through design change, **Solar Energy(Elsevier)**,171, 354-365(IF=7.188) DOI: 10.1016/j.solener.2018.06.088

2017

16. Sagade Atul, **S.K. Samdarshi*** and Partha S Panja(2017) Experimental Determination of Effective Concentration Ratio for Solar Box Cookers using Thermal Tests, **Solar Energy(Elsevier)**,159, 984-991 (IF=5.742) DOI: 10.1016/j.solener.2017.11.021
17. Verma R, **S.K. Samdarshi***, Kalpana Sagar and B.K. Konwar(2017), Nanostructured bi-phasic TiO₂ nanoparticles grown on reduced graphene oxide with high visible light photocatalytic detoxification, **Materials Chemistry and Physics(Elsevier)**, 186, 202-211 (IF=4.778) DOI: 10.1016/j.matchemphys.2016.10.045 [*Cited by Ciara Byrne et al(2018) Advances in the Development of Novel Photocatalysts for Detoxification: Nanostructured Catalyst Design, Mechanisms, and Applications in the book Visible Light-Active Photocatalysis, Srabanti Ghosh (Editor), published by Wiley, 2018; DOI 10.1002/9783527808175.ch11*]
18. Samrat Paul, Biju Mani Rajbongshi, Birinchi Bora, Ranjith G Nair and **S K Samdarshi** (2017), Organic photovoltaic cells using green-MWCNTs, **New Carbon Materials(Elsevier)**, 32 (1), 27-34 (IF=3.70) DOI: 10.1016/S1872-5805(17)60104-5

2016

19. Nair Ranjith G., Abinash Das, Samrat Paul, B. Rajbongshi, **S. K. Samdarshi***(2016) MWCNT decorated V doped Titania: An efficient visible active photocatalyst, **Journal of Alloys and Compounds(Elsevier)**, 695, 3511-3516(IF=6.371) DOI: 10.1016/j.jallcom.2016.12.002
20. Verma R, and **S K Samdarshi***(2016) In-Situ Decorated Optimized CeO₂ on Reduced Graphene Oxide with Enhanced Absorptivity and Visible Light Photocatalytic Stability and Reusability, **Journal of Physical Chemistry C(ACS)**, 120, 22281–22290, 2016(IF=4.772) DOI: 10.1021/acs.jpcc.6b04493
21. Boro B., B. M. Rajbongshi, and **S.K. Samdarshi***(2016) Synthesis and fabrication of TiO₂-ZnO nanocomposite based solid state dye sensitized solar cell, **Journal of Materials Science: Materials in Electronics (JMSE)(Springer)**, 27 (9), 9929–9940 (IF=2.779) DOI: 10.1007/s10854-016-5062-8
22. Ramchiary A, **S. K. Samdarshi***, and T Shripathi (2016) Hydrogenated mixed phase Ag/TiO₂ nanoparticle - A super-active photocatalyst under visible radiation with multi-cyclic stability, **Solar Energy Materials and Solar cells(Elsevier)**, 155, 117-127 (IF=7.305) DOI: 10.1016/j.solmat.2016.04.050

2015

23. Verma R, **S K Samdarshi*** and Jay Singh(2015) Hexagonal Ceria Located at the Interface of Anatase/Rutile TiO₂ Superstructure Optimized for High Activity under Combined UV and Visible Light Irradiation, **Journal of Physical Chemistry C(ACS)**, 119 (42), 23899–23909(IF=4.772) DOI: 10.1021/acs.jpcc.5b05652
24. Verma R, **S K Samdarshi***, Sreedhar Bojja, Samrat Paul, Biswajit Choudhury(2015) A novel thermo-photocatalyst of mixed-phase cerium oxide (CeO₂/Ce₂O₃) homo-composite nanostructure: Role of interface and oxygen vacancies, **Solar Energy Materials and Solar cells(Elsevier)**, 141, 414–422, 2015(IF=7.305) DOI: 10.1016/j.solmat.2015.06.027

*E-mail: drksamdarshi@rediffmail.com

[*highlighted in Nanotechnology Weekly, September 7, 2015, www.highbeam.com/doc/1G1-427845051.html*]

25. Ramchiary A, and **S. K. Samdarshi*** (2015) Hydrogenation based disorder-engineered visible active N-doped mixed phase titania, **Solar Energy Materials and Solar cells(Elsevier)**, 134, 381-388, 2015 (IF=7.305) DOI: 10.1016/j.solmat.2014.12.031
26. Nair, R G Nair, P J Bharadwaj, S K Samdarshi(2015) Design improvement and performance evaluation of solar photocatalytic reactor for industrial effluent treatment, **Ecotoxicology and Environmental Safety(Elsevier)**,134(2), 301–307 (IF=7.129) DOI: 10.1016/j.ecoenv.2015.07.036
27. Verma R. and **S K Samdarshi*** (2015) Correlating oxygen vacancies and phase ratio/interface with efficient photocatalytic activity in mixed phase TiO₂ **Journal of Alloys and Compounds(Elsevier)**, 629, 105-112,2015(FYIF=6.371)
28. Rajbongshi Biju Mani, **S K Samdarshi***, Bibha Boro(2015) Multiphasic bicomponent TiO₂-ZnO nanocomposite: synthesis, characterization and investigation of photocatalytic activity under different wavelength of light irradiation" **Journal of Materials Science: Materials in Electronics (JMSE)(Springer)**, 2015, 26, 377–384(IF=2.779).

2014

29. Rajbongshi, Biju Mani and **S. K. Samdarshi***(2014) Influence of N-doping on photocatalytic activity of ZnO nanoparticles under visible light irradiation, **Materials Letters(Elsevier)**, 134, 111-114,2014(FYIF=4.778)
30. Ramchiary A, B M Rajbongshi and **S. K. Samdarshi*** (2014) Investigation of visible light active Ag sensitized mixed phase TiO₂ photocatalyst for solar energy application, **Journal of Sol-Gel Science and Technology(Springer)**, 72(1), 114-121, 2014(IF=2.606)
31. Rajbongshi B M, Ramchiary A, B M Jha, and **S. K. Samdarshi***(2014) Synthesis and characterization of plasmonic visible active Ag/ZnO photocatalyst, **Journal of Materials Science: Materials in Electronics (JMSE)(Springer)**, 25(7), 2969-2973, 2014 (IF=2.8).

32. Ramchiary A, B M Rajbongshi and **S. K. Samdarshi***(2014)Ag deposited mixed phase titania visible light photocatalyst– Superiority of Ag-titania and mixed phase titania co- junction, **Applied Surface Science(Elsevier)**, 305, 33-39, 2014(FYIF=7.392)
33. Ramchiary, A and **S K Samdarshi***(2014)High Visible Light Activity of Hydrogenated Structure-Engineered Mixed Phase Titania Photocatalyst, **Chemical Physics Letters(Elsevier)**, 597, 63-68.(FYIF=2.8).
34. Rajbongshi, Biju Mani and **S. K. Samdarshi***(2014) Cobalt-doped zincblende–wurtzite mixed-phase ZnO photocatalyst nanoparticles with high activity in visible spectrum, **Applied Catalysis B: Environmental (Elsevier)**,144, 435-441, 2014, (FYIF=24.319).
35. Biju Mani Rajbongshi and **S K. Samdarshi**(2014) ZnO and Co-ZnO nanorods - Complementary role of oxygen vacancy in photocatalytic activity of under UV and visible radiation flux, **Materials Science and Engineering: B(Elsevier)**, 182, 21-28 (FYIF=4.051)

2013

36. Nair G. Ranjith, **S. K. Samdarshi**, and Bruno Boury (2013) Surface Mineralization of Cellulose by Metal Chloride – an Original Pathway for the Synthesis of Hierarchical Urchin and Needle Carpetlike TiO₂ Superstructures, **European Journal of Inorganic Chemistry(RSC)**, 2013(30), 5303–5310.(IF=2.551)
37. Barnali Das, Ranjith G. Nair, Biju Mani Rajbongshi and **S.K. Samdarshi***(2013), Investigation of the photoactivity of pristine and mixed phase N-doped Titania under visible and solar irradiation,**Material characterization (Elsevier)**,83,145-151, 2013(IF= 4.537).

2012

38. Bruno Boury, Ranjith G. Nair, **Sanjoy K. Samdarshi**, Tahereh Makiabadi and P. Hubert Mutin(2012) Non-hydrolytic synthesis of hierarchical TiO₂ nanostructures using natural cellulosic materials as both oxygen donors and templates, **New Journal of Chemistry(RSC)**, 2012,36, 2196-2200.(IF=3.925)

* Corresponding author; E-mail: drksamdarshi@rediffmail.com; Phone: +919431107270

39. Nair, Ranjith. G., Jetendra Kumar Roy, **S. K. Samdarshi***, A. K. Mukherjee (2012) Mixed phase V doped titania shows high photoactivity for disinfection of Escherichia coli and detoxification of phenol **Solar Energy Materials and Solar cells(Elsevier)**, 2012, 105, 103-108.(FYIF=7.267)
40. Lahkar J. Pranab, Bhamu K. Rajesh, **S. K. Samdarshi*(2012)**Enabling inter-cooker thermal performance comparison based on cooker opto-thermal ratio (COR),**Applied Energy(Elsevier)**,99, 2012, 491–495.(FYIF=11.446)
41. Nair, Ranjith. G., A. M. Tripathi, **S. K. Samdarshi*(2012)** Impact of Ti-V ratio on the crystalline phase/visible light activity of TiV–oxide photocatalyst, **Environmental Progress and Sustainable Energy (AIChE, Wiley-Blackwell)**, 31(1), 107–113.(IF=2.8)
42. Husain M., G. Sharma, **S.K. Samdarshi*** (2012) Innovative design of non-convective zone of salt gradient solar pond for optimum thermal performance and stability, **Applied Energy(Elsevier)**, 93, 357–363.(FYIF=11.446)
43. Suhas R. Patil, U. G. Akpan, B. H. Hameed, **S. K. Samdarshi** (2012) Comparative study of photocatalytic efficiency of Degussa P25, Qualigens and Hombikat UV-100 in the degradation kinetic of congo red dye, **Desalination and Water Treatment –Journal of European Desalination Society, (Taylor and Francis)**, 46, 188–195.(IF=1.254)

2011

44. Chaturvedi A, and **S K Samdarshi*** (2011) Energy, Economy and Development (EED) Triangle: Concerns for India, **Energy Policy (Elsevier)**,39(8), 4651-4655.(FYIF=7.576)[*Cited in Security of Energy Supply, International Handbook of Energy Security, Hugh Dyer and Maria Julia Trombetta (Editors), Edward Elgar Publishing Ltd, UK, 2013*].
45. Nair, Ranjith. G., A. M. Tripathi and **S. K. Samdarshi*(2011)** Photocatalytic activity of predominantly rutile mixed phase Ag/TiV oxide nanoparticles under visible light irradiation, **Energy(Elsevier)**,36, 3342-3347. (IF=8.857)
46. Nair, Ranjith. G., Jetendra Kumar Roy, **S. K. Samdarshi***, A. K. Mukherjee(2011) Enhanced visible light photocatalytic disinfection of gram negative, pathogenic Escherichia coli bacteria with Ag/TiV oxide nanoparticles, **Colloids and surfaces B: Biointerfaces(Elsevier)**, 86, 7–13. (IF=5.999)

47. Nair, Ranjith. G., Samrat Paul, **S. K. Samdarshi*** (2011) High UV/Visible light activity of mixed phase titania: A generic mechanism, **Solar Energy Materials and Solar cells(Elsevier)**, 95, 1901–1907(IF=7.303)
48. Paul Samrat and **S K Samdarshi*** (2011) A green precursor for carbon nanotubes synthesis, **New carbon materials (Elsevier)**,26(2),1-4(IF=1.905)

2010

49. M. Nirmala, Manjula G. Nair, K. Rekha, A. Anukaliani, **S.K. Samdarshi** and Ranjith G. Nair (2010) Photocatalytic Activity of ZnO Nanopowders Synthesized by DC Thermal Plasma, **African Journal of Basic & Applied Sciences**, 2 (5-6), 161-166.
50. Tripathi, A. M., Ranjith. G. Nair and **S. K. Samdarshi*** (2010) Visible active silver sensitized vanadium titanium mixed metal oxide photocatalyst nanoparticles through sol gel technique, **Solar Energy Materials and Solar Cells (Elsevier)**,94, 2379-2385.(IF=7.267)
51. Saikia, J P, S Paul , B K Konwar, and **S K Samdarshi** (2010) Ultrasonication: enhances the antioxidant activity of metal oxide nanoparticles, **Colloids and Surfaces B: Biointerfaces, (Elsevier)** 79, 521-523.(IF=5.268)
52. Paul Samrat and **S K Samdarshi*** (2010) Carbon Microtubes from coconut oil. **New Carbon Materials(Elsevier)**, 25(5), 321-324(IF=3.700)
53. Lahkar, Pranab J and **S K Samdarshi***(2010) A review of the thermal performance parameters of Box type solar cookers. **Renewable and Sustainable Energy Reviews(Elsevier)**, 14, 1615–1621.(Five year IF=16.799)[Cited in *Renewable Energy Sources and Climate Change Mitigation – Special report of the Intergovernmental Panel on Climate Change, Chapter-3, Cambridge University Press, DOI: <https://doi.org/10.1017/CBO9781139151153.007>, pp 333-400]*
54. Saikia, J P, S Paul , B K Konwar, and **S K Samdarshi** (2010) Nickel oxide nanoparticles: A novel antioxidant, **Colloids and Surfaces B: Biointerfaces(Elsevier)**, 78, 146–148.(FYIF=5.268)

1988-2009

55. Nath, Bhaskar J., Suhas R. Patil, Pranab J. Lahkar and **S. K. Samdarshi***(2009) Process Optimization of Photocatalytic Degradation of Dye in a TiO₂ Slurry Reactor Using Taguchi Method, **SESI-Journal(Taylor and Francis)**, 19(1&2).(IF=NA)
56. Paul Samrat, **S K Samdarshi***, J P Saikia, B Konwar(2009) Investigation of antioxidant property of Iron-oxide particles by DPPH scavenging method, **Jr. of Magnetism and Magnetic Materials(Elsevier)**, 321(21), 2009, 3621-3623.(Five year IF=3.097)
57. Hussain, M., P.S. Patil, S.R. Patil, and **S. K. Samdarshi*** (2004) Combined effect of bottom reflectivity and water turbidity on steady state thermal efficiency of Salt gradient solar pond, **Energy Conversion and Management(Elsevier)**, 45, 73-81 (Five year IF=11.533).
58. Hussain, M., P.S. Patil, S.R. Patil, and **S. K. Samdarshi*** (2004) Optimum Size of Non-Convective Zone for Improved Thermal Performance of Salt Gradient Solar Pond, **Solar Energy(Elsevier)**, 74, 429-436. (Five year IF=6.7).
59. Hussain, M., P.S. Patil, S.R. Patil, and **S. K. Samdarshi***(2003) Simple methods for estimation of transmittance in solar ponds, **Energy Conversion & Management(Elsevier)**, 45, 303-314. (Five year IF=11.533).
60. Hussain, M., P.S. Patil, S.R. Patil, and **S. K. Samdarshi*** (2003) Computer Simulation of Salt Gradient Solar Ponds Thermal Behavior, **Renewable Energy(Elsevier)**, 28, 769-802. (IF=8.634).
61. **Samdarshi, S. K.**, and S. C. Mullick(1997) An analytical equation for heat loss factor of a perfectly evacuated tubular collector, **SESI Journal(SESI)**, 7(2), 75. (IF=NA)
62. Mullick, S. C., and **S. K. Samdarshi**(1996) A method for representing the experimental data on heat loss factor of Flat plate collector, **SESI Journal(SESI)**, 6(2), 69.(IF=NA)
63. **Samdarshi, S. K.**, and S. C. Mullick(1994) A generalized analytical equation for top heat loss factor of flat plate collector with N glass covers, **Transactions of ASME--Journal of Solar Energy Engineering(ASME)**, 116, 43 (IF=2.384).
64. **Samdarshi, S. K.**, and S. C. Mullick(1991) Equation for top heat loss factor of a flat plate collector with double glazing, **Transactions of ASME--Journal of Solar Energy**

Engineering(ASME), 113, 117 (IF=2.349)[Cited in Goswami Yogi D. , *Principles of Solar Engineering, Third Edition, CRC Press, Taylor and Francis, 2015*].

- 65. Samdarshi, S. K.**, and S. C. Mullick(1990) Analysis of the top heat loss factor of flat plate solar collectors with single and double glazing, **International Journal of Energy Research**, 14(9), 975-990 (IF=4.672).
- 66. Samdarshi, S. K.**, N.C. Bhowmick, and S. C. Mullick(1990) Estimation of Global emittance of tubular absorber by measurement of heat losses, **International Journal of Energy Research(Wiley)**, 14, 169 (IF=5.164).
- 67. Mullick, S.C.**, and **S. K. Samdarshi**(1988) An improved technique for computing top heat loss factor of a flat plate collector with a single glazing, **Transactions of ASME--Journal of Solar Energy Engineering(ASME)**, 110, 262 (FYIF=2.349). [Cited in Goswami Yogi D. , *Principles of Solar Engineering, Third Edition, CRC Press, Taylor and Francis, 2015*]

ii) Conference proceedings/presentations: 72

1990-2009

- 1. Samdarshi, S. K.**, and S. C. Mullick(1990) Study of dependence of top heat loss factor of a flat plate collector with single glazing on basic parameters, Renewable Energy and Environment, A. N. Mathur, and N. S. Rathore(Editors), Himanshu Publications, 289.
- 2. Samdarshi, S. K.**, and S. C. Mullick(1992), Comparative analysis of analytical and empirical equations for computing top heat loss factor of a flat plate collector with N glass covers, New Dimensions in Renewable Energy, N. K. Bansal(Editor), SESI India and Solar AG, Dusseldorf, Germany, 253.
- 3. Samdarshi, S. K.**(1996) A solar pond under uniform weather conditions, Towards Clean Energy, B. Ghosh, S. K. Saha, S. Basu(Editors), Tata McGrawHill, 400.
- Desale, T.H., A. K. Patil, and **S. K. Samdarshi**(1998) Experimental investigations on Figures of merit of Solar Cookers, Published in the proceedings of NSEC'98 organised by SESI, India, 265-271
- 5. Samdarshi, S. K.**(1998) Physics with energy studies specialization-An experience, Renewable energy education-current scenario and future projections, Anil Mishra(Editor), TERI & SESI with International Solar Energy Society, 169.
- Husain, M., S. R. Patil, P.S. Patil and **S. K. Samdarshi**(2000) Effect of bottom reflectance on performance of salt gradient solar pond, Renewable Energy Technology for the New Millenium, R. Banerjee, J.B.Nayak and B.G. Fernandes(Editors), Allied Publishers, Mumbai, 134-137

7. Husain, M., S. R. Patil, P.S. Patil and **S. K. Samdarshi**(2000) Photocatalysis and solar photo thermal energy conversion : Techno-economic feasibility analysis, Renewable Energy Technology for the New Millenium, R. Banerjee, J.B.Nayak and B.G. Fernandes(Editors), Allied Publishers, Mumbai, 210-214.
8. Patil, P.S., Suhas R. Patil, M. Husain, **S. K. Samdarshi**(2002) Photo-degradation of Methylene Blue using TiO₂ Catalyst, Proceedings of International Conference on Recent advances in Solar Energy Conversion Systems(ICSECS, 2002), pp.276-281.
9. Patil, P.S. M. Husain, S.R. Patil and **S. K. Samdarshi**(2002) Photocatalytic degradation of Phenol using a new anatase Titanium Dioxide photo catalyst :Dependence on catalytic dosage and optical path-length in aqueous slurry, Research Journal of International congress of Chemistry and Environment, 2002.
10. Husain M, P.S. Patil, S.R. Patil, and **S. K. Samdarshi**(2003) Effect of turbidity on thermal performance of Salt gradient solar pond with reflective bottom, Advance in Renewable Energy Technology, S.H.Pawar and L.A.Ekal(Editors), Proceedings of National Symposium on Recent Advances in Renewable Energy Technologies, held during August 13-15, 2002, at Kolhapur, India., 125-129. (ISBN 10: 8173195331 ISBN 13: 9788173195334)
11. Patil, Suhas R., P.S. Patil, M. Husain, **S. K. Samdarshi**(2004)Comparative Studies of Decolorization/Degradation of Azo Dye Using Solar and Artificial UV Radiation with Different Types of TiO₂ Photocatalysts, Proceedings of WREC-VIII, Colorado, USA.
12. Patil, Suhas R., P.S. Patil, M. Husain, **S. K. Samdarshi**(2004)Parametric Investigation on Thermal Performance of Box-type Solar Cookers Using Existing Models, Proceedings of WREC-VIII, Colorado, USA.
13. Bhaskar J. Nath, Suhas R. Patil, Pranab J. Lahkar and **S. K.Samdarshi** (2007) Design and Process Optimization of Slurry Type Solar Photocatalytic Detoxification Reactor Using Taguchi Method for Congo-Red, Proceedings of International Oil and gas conference, Petrotech 2007, New Delhi, India.
14. **SamdarshiS. K.** and Bhaskar J. Nath (2007) Solar Photocatalytic Process Design for Decontamination of Crude Oil Contaminated Soil, Proceedings of International Oil and gas conference, Petrotech 2007, New Delhi, India.
15. Lahkar, Pranab J, B. J Nath, S. Paul and **S K Samdarshi**(2007) Thermal performance evaluation of Box type solar cookers : A review, Proceedings of International Congress on Renewable Energy-2007.
16. Paul Samrat,P.J. Lahkar,**S. K Samdarshi**, Maheshwar Sharon (2007) Development of Hydrogen-Electrode for Alkaline Fuel Cell Incorporating CNM's, Proceedings of International Congress on Renewable Energy-2007.
17. Paul Samrat, **S K Samdarshi** (2009) Development of Oxygen-Electrode for Alkaline Fuel Cell incorporating Bi-matelllic Electrocatalyst, Proceedings of PETROTECH-2009, New Delhi, India.
18. Paul Samrat, **Samdarshi S K**, Sharon Maheshwar(2009) Development of Hydrogen-Electrode for Alkaline Fuel Cell incorporating Bi-matelllic Electrocatalyst, Proceedings of ISCA-2009.

19. Paul Samrat, **S K Samdarshi** (2009) Effect of aging time on morphology of iron oxide nano/micro particle during synthesis by hydrothermal process, Proceedings of ISCA-2009 (*Best paper award* of the poster session in Engineering science section of 96th Indian Science Congress).
20. Paul Samrat, **S K Samdarshi** (2009) Energy efficient synthesis of carbon nanotubes from plant precursors : A sustainable nanotechnology, Proceedings of ICORE – 2009.
21. **S. K. Samdarshi**, Ranjith. G. Nair, A. M. Tripathi (2009) Development of Visible Active Ag deposited TiV oxide Photocatalytic Nanoparticle system, Proceedings of ICORE – 2009, New Delhi, India.
22. Chaturvedi, A and **S K Samdarshi**(2009) Defending Energy Supply Lines: Energy Security concerns for India Proceedings of ICORE – 2009, New Delhi, India.

2010

23. Alok M Tripathi, **S K Samdarshi** and R G Nair (2010) Influence of Ti/V ratio on the visible light photocatalytic activity of TiV oxide nanoparticles, Proceedings of ISCA-2010 (*Best paper award* in the poster session of Engineering science section of 97th Indian Science Congress).
24. Lahkar, Pranab J and **S K Samdarshi**, A generic test procedure for estimation of thermal performance parameters and their correlation with objective parameters for paraboloid concentrator cooker, presented at National Conference of Renewable Energy(NCRE-2010), Tezpur.
25. Das, Barnali, Ranjith G Nair, Samrat Paul and **S K Samdrashi**, Enhanced photocatalytic activity of N-doped TiO₂ nanoparticles, presented at National Conference of Renewable Energy(NCRE-2010), March 23-25 2010, Tezpur.
26. Nair, Ranjith G and **S K Samdarshi**, Influence of anatase/ rutile ratio on photocatalytic activity of TiO₂ nanoparticles, presented at National Conference of Renewable Energy(NCRE-2010), Tezpur.
27. Chaturvedi, A and **S K Samdarshi**, Energy security concerns for India, presented at National Conference of Renewable Energy(NCRE-2010), Tezpur. (in press)
28. Paul, S and **S K Samdarshi**, Renewable precursor for carbon nanotube synthesis and their application in fuel cell electrode, presented at National Conference of Renewable Energy(NCRE-2010), Tezpur. (in press)
29. Bharadwaj, Paranjyoti, R. G. Nair, **S. K. Samdarshi** Designing geometry of a compound parabolic solar reactor with cylindrical absorber used for photocatalytic detoxification, Proceedings of ICORE-2010, pp. 149-153.
30. Ojah, Swapna, R. G. Nair, **S. K. Samdarshi**, A review on recent development in dye sensitized solar cell Proceedings of ICORE-2010, pp. 154-160.
31. Borah, Pankaj, **S. K. Samdarshi** Design of a dual axis solar tracker system of photovoltaic module and purpose for automatic control Proceedings of ICORE-2010, pp.161-168.
32. Bora, Birinchi, S. Paul, **S. K. Samdarshi** A review article on the role of cnt as an electron acceptor in organic photovoltaic cell Proceedings of ICORE-2010, pp.93-101.

33. Rajbongshi, Bijumani, S. Paul, **S. K. Samdarshi** A review on poly aniline in organic solar cells. Proceedings of ICORE-2010, pp.111-117.
34. Nair, Ranjith G. and **S.K. Samdarshi** Visible light induced photocatalytic disinfection of E.Coli using vanadium doped Titanium dioxide. Proceedings of ICORE-2010, pp.118-124.
35. Chaturvedi, A and **S K Samdarshi** Energy supply security concerns for India Proceedings of ICORE-2010, pp.269-273.

2011

36. Bora, Birinchi, Samrat Paul, **Sanjoy Kumar Samdarshi** Antioxidant activity of Nanomaterials and their utilization in Biodiesel storage - paper accepted for presentation in the poster session of Engineering science section of 98th Indian Science Congress to be held from January 2-7, 2011 at Chennai
37. Rajbongshi, Biju Mani, Paul, Samrat and **S. K. Samdarshi** Synthesis of carbon nanotubes (CNT) from Mustard oil - paper accepted for presentation in the poster session of Engineering science section of 98th Indian Science Congress to be held from January 2-7, 2011 at Chennai
38. Ojah, Swapna, Ranjith G. Nair and **S. K. Samdarshi** Enhanced visible active rutile TiO₂ nano photocatalyst for the degradation phenol - paper accepted for presentation in the poster session of Engineering science section of 98th Indian Science Congress to be held from January 2-7, 2011 at Chennai
39. Bharadwaj, Paranjyoti, Ranjith. G. Nair and **S. K. Samdarshi**, Design of a compound parabolic solar reactor with cylindrical absorber used for photocatalytic detoxification - paper accepted for presentation in the poster session of Engineering science section of 98th Indian Science Congress to be held from January 2-7, 2011 at Chennai
40. Borah, Pankaj and **S. K Samdarshi**, A review on sun tracking for optimization of power output of PV panel - paper accepted for presentation in the poster session of Engineering science section of 98th Indian Science Congress to be held from January 2-7, 2011 at Chennai
41. Nair, Ranjith. G. and **S. K Samdarshi**, Mixed phase vanadium doped titania nanoparticles for photocatalytic degradation of Phenol, Presented in **NATPAS-2011** held from 01- 03 February 2011 at Tezpur University
42. Nair, Ranjith G, **S. K. Samdarshi**, H. Mutin and B. Boury, Effect of silver deposition on detoxification and disinfection performance of a TiV oxide photocatalyst presented at JEP 2011 symposium, France.

2012

43. Paul S. and **S K Samdarshi**, Functionalized cut-MWCNT for OPV application, S Paul got Young Scientist Award of ISCA for the paper and presented it at Indian Science Congress 2012 at Bhubaneshwar.

2013

44. Nair, Ranjith G, Biju Mani Rajbongshi and **S. K. Samdarshi** "Synthesis and characterization of highly visible active multiwalled carbon nanotubes (MWCNT)

decorated V doped titania photocatalyst” **International Solar Energy society 2013** Concum, Mexico (Accepted).

45. Rajbongshi, Biju Mani, Anjalu Ramchiary and **S. K. Samdarshi**, Surface plasmon assisted visible active Ag/ZnO photocatalyst, International Conference on Nanotechnology 2013, Kolkata.
46. Rajbongshi, Biju Mani, Anjalu Ramchiary, Sunny Bharali and **S K Samdarshi**, Ni doping induced structural and optical modifications in TiO₂ nano-structure for efficient use of solar energy, ICORE 2013, KIIT University, Bhubaneswar.
47. Ranjana Verma, **S. K Samdarshi**, Defect assisted multifunctional CeO₂ nanoparticles for photocatalytic detoxification and disinfection (bactericidal/fungicidal) applications, India-Japan Workshop on “Biomolecular Electronics and Organic Nanotechnology for Environment Preservation” (IJWBME 2013) held at Delhi Technological University, 13-15 Dec 2013.
48. Jayswal Vijay K., Ranjana Verma, Rupam Kataki, **SK Samdarshi***, Structural, Optical and Electrochemical properties of Ceria doped Titania thin films for Solar Energy Applications: a Review, India-Japan Workshop on “Biomolecular Electronics and Organic Nanotechnology for Environment Preservation” (IJWBME 2013) held at Delhi Technological University, 13-15 Dec 2013.

2014

49. Ranjana Verma, **S.K. Samdarshi** “Role of oxygen vacancies and mixed phase in TiO₂ Photocatalysis” International conference on green energy and smart material through science, technology and management (GESM14), Guwahati, 21 – 23 January 2014.
50. Biju Mani Rajbongshi, Anjalu Ramchiary and **S K Samdarshi**“Synthesis and characterization of visible active nitrogen doped ZnO”, International Conference on Green Energy and Smart Materials through Science and Management (GSEM’14), Guwahati, 2014.

2015

51. Biju Mani Rajbongshi and **S K Samdarshi** “ Visible active silver sensitized mixed phase ZnO photocatalyst” Proceedings of International World Congress 2015, International Solar Energy Society, doi: 10.180086/swc.2015.04.26 available at proceedings.ises.org

2016

52. Anjalu Ramchiary and **S. K. Samdarshi**, “Synthesis, characterization and study the electrochemical behaviour of Ag/TiO₂ thin film” International conference on recent

- innovations in sciences, technology, education and management held at JCD Vidyapeeth, Sirsa, Haryana on August 27, 2016, P55-63 (1), (ISBN-978-93-86171-04-7)
53. Ashish Sharma, Birinchi Bora, Yogesh K. Singh, Bishnu M. Jha, Rashmi Singh, Supriya Rai, Manander Bangar, Renu, R. Singh, S. Chakraborty, D. Singh, K. Saikia, **S.K. Samdarshi**, O.S. Sastry, "Outdoor performance and seasonal analysis of sunpower (maxeon tm) technology PV modules in composite climate of India", Presented at 32nd European Photovoltaic Solar Energy Conference and Exhibition at ICM - International Congress Center Munich, Germany in 20 – 24 June 2016.

2017

54. Kumar Gaurav, Neha Kumari, A. S. Bhattacharyya and **S. K. Samdarshi**, Photoactivity of titania-tungsten composite under UV irradiation (poster), 11th Asia Pacific conference on sustainable energy and environmental technologies (APCSEET 2017) held from 6th-10th March 2017 at Patna.
55. Neha Kumari, Kumar Gaurav, A. S. Bhattacharyya and **S. K. Samdarshi**, Photoactivity of niobium doped TiO₂ under UV irradiation, 11th Asia Pacific conference on sustainable energy and environmental technologies (APCSEET 2017) held from 6th-10th March 2017 at Patna.
56. Neha Kumari, **Kumar Gaurav**, A. S. Bhattacharyya and **S. K. Samdarshi**, Comparison of photoactivity of TiO₂Nb₂O₅ and Nb₂O₅-TiO₂ under UV irradiation (poster), International conference on Frontiers of Chemical Sciences (ICFCS 2017) held from 16th -18th March 2017 at Central university of Jharkhand, Ranchi.
57. Nair Ranjith G., Mathan Kumar P. and **S. K. Samdarshi** (2017) Performance engineering of dye sensitized solar cells (DSSC) using Ag modified titania as photoanode, **Materials Science and Engineering(IOP)** 303 (2017) 012001, ICFMM2017 November 28-30, 2017 Kuala Lumpur, Malaysia doi:10.1088/1757-899X/303/1/012001

2018

2019

58. Kumar Gaurav, Neha Kumari, A. S. Bhattacharyya, and **S. K. Samdarshi** (2019) Photoactivity of Tungsten and Niobium composite of Titania under UV Irradiation, Paper presented During International Conference on Advanced Material for Energy Science and Technology (AMEST 2019) held from Feb 26-28, 2019 at NEHU, Shillong.

59. Rajib Saha, Rahul Singh Chutia, Priyanko Protim Gohain, Mahua Gupta Choudhury, Samrat Paul and **S. K. Samdarshi**(2019) Optimization of Process Parameters for CNT synthesis using “Green Precursors” by Taguchi robust method(2019) Paper presented During International Conference on Advanced Material for Energy Science and Technology(AMEST 2019) held from Feb 26-28, 2019 at NEHU, Shillong.
60. Atul A. Sagade, **S.K.Samdarshi**, Narayani A.Sagade (2019) Assessing the Impact of Small Design Change on the Thermal Performance of Solar Cookers(ST/2), Paper presented at International Conference on Green and Efficient Energy Technology and Materials(GEETAM), 2019 organized from March 6-8, 2019 by CoE-GEET at Central University of Jharkhand, Ranchi
61. K. Gaurav; N. Kumari;.Anish Ranjan, Rohit Singh , A.S. Bhattacharyya; S.K.Samdarshi(2019) Synthesis of mixed phase Tungston Oxide for enhanced visible-light-driven photocatalytic performance(EMA/11) , Paper presented at International Conference on Green and Efficient Energy Technology and Materials(GEETAM), 2019 organized from March 6-8, 2019 by CoE-GEET at Central University of Jharkhand, Ranchi
62. T. Sudheer, Neha Kumari, Kumar Gaurav, S.K.Samdarshi(2019) Photocatalytic activity of ceria doped ZnO Nanocomposites(EMA/13), Paper presented at International Conference on Green and Efficient Energy Technology and Materials(GEETAM), 2019 organized from March 6-8, 2019 by CoE-GEET at Central University of Jharkhand, Ranchi
63. Neha Kumari, Kumar Gaurav, A.S. Bhattacharyya, **S.K.Samdarshi**(2019) Structural and Photocatalytic activity of Nb₂O₅ @ TiO₂ (EMA/17), Paper presented at International Conference on Green and Efficient Energy Technology and Materials(GEETAM), 2019 organized from March 6-8, 2019 by CoE-GEET at Central University of Jharkhand, Ranchi

2021

64. Gaurav K., Kumari N., **Samdarshi S.K.**, Bhattacharyya A.S. (2021) A Simplified Non-iterative Method for Extraction of Parameters of Photovoltaic Cell/Module. In: Bose M., Modi A. (eds) Proceedings of the 7th International Conference on Advances in Energy Research August 26-28, 2021. Springer Proceedings in Energy. Springer, Singapore. https://doi.org/10.1007/978-981-15-5955-6_99

2022

65. Shubham Sanyal and **S.K. Samdarshi** (2022) An assessment of the operational and financial aspects of the power distribution sector for the Indian state of Jharkhand, paper presented at IEEE conference 2nd IEMRE2022 Institute of Engineering & Management, Kolkata, India during February 25th-27th, <https://doi.org/2022978-1-6654-1064-9>
66. Md. Rahbar Jamal, **S K Samdarshi**, P S Panja(2022) Thermal Performance Evaluation of Indian Standard Solar Box Cooker (SBC) with Retrofitted Radiative Control, Paper presented at ICAER, 2022 at IIT Bombay on July 07, 2022
67. Tripurari K Harsh, Kumar Gaurav, Neha Kumari, **S K Samdarshi**, Uday Deshpande(2022), Cerium doped Bismuth oxide nanocomposite with enhanced photocatalytic activity, Paper presented at International Conference on Nanotechnology: Opportunities and Challenges(ICNOC-2022) organized by Jamia Milia Islamia between Nov 28-30, 2022

2023

68. P S Panja, Md Rahbar Jamal, **S K Samdarshi**, and Mandeep Singh(2023) Solar cooker carbon mitigation potential and load capacity: Identification, analysis, and utility of the objective parameters derivable from COR, Paper presented at International Conference on 'Frontiers in Energy, Environment and Material Sciences for Sustainable Development (FEEMSSD-2023) jointly organized by Madan Mohan Malaviya University of Technology, Gorakhpur from March 16-17, 2023
69. Tripurari Kumar Harsh, Neha Kumari, Kumar Gaurav, **S.K. Samdarshi***, Uday Deshpande(2023) Facile synthesis of bismuth oxide phases and its performance under visible irradiation" International conference on Smart materials for sustainable technologies II, SMST-2022, IIT Bombay from Oct 13-16, 2022 jointly organised by IIT BHU and IIT Bombay.
70. Tripurari Kumar Harsh, **S K Samdarshi***, Uday Deshpande, Bhola Kumar, Md. Rahbar Jamal, Rahul Kumar Rajak, and A.S Bhattacharya(2023) Performance of mixed phase TiO₂ film samples immobilised on a 2-D flat plate surface for photo catalytic reusability application, Paper presented at Solar World Congress 2023 organized by International Solar Energy Society and Solar Energy Society of India held at New Delhi from October 30 to November 04, 2023.

71. P S Panja, Md. Rahbar Jamal, S K Samdarshi, and Atul A Sagade (2023) A review of thermal performance parameters and objective parameters of solar cookers: their correlation and effectiveness, presented at International Conference on Renewable Energy(ICORE-2023) between 7-9 December, 2023 organized by KREEPA under the aegis of Solar Energy Society of India(SES).
72. Tripurari Kumar Harsh, S.K. Samdarshi*, Uday Deshpande, AS Bhattacharyya(2023) A sustainable synthesis of carbon dot nanoparticles (CDN) from waste plant (*Argemone mexicana*) seed for solar photocatalysis applications presented at International Conference on Renewable Energy(ICORE-2023) between 7-9 December, 2023 organized by KREEPA under the aegis of Solar Energy Society of India(SES) published in ISES Conference Proceedings (2023), 10.18086/swc.2023.13.01, <http://proceedings.ises.org>

Patents: International 00 National 01

National

1. A process for preparing carbon nanotubes from non-biodegradable polypropylene and polythelene terephthalate.(28578 of 01/08/2017).
2. Thermal performance improvement and cost reduction of Indian standard solar box cooker through retrofitting of radiation regulator and its validation through standard tests(Pre-registration processed on May 21, 2022).

Books/Chapter: Edited: 03 Authored: Chapter 03

1. **S K Samdarshi**, S Mahapatra, and S Paul(2011) Renewables: Growth through Acadmeia-Industry Interface, Solar Energy Society of India, New Delhi.
2. **S K Samdarshi**, J S Jawa(2012)Grid Power from Renewables, Solar Energy Society of India, Excel India Publishers, New Delhi.(ISBN: 978-93-82062-77-6)
3. Kumaravel M, S M Ali,**S K Samdarshi**, R Jha, and J S Jawa (2013)Renewables for Development of Rural Areas, Excel India Publishers, New Delhi. (ISBN: 978-93-82880-80-6)
4. Swapna Ojah, Ranjlth G. Nair and **S. K. Samdarshi**(2013),Recent Development in Dye-Sensitized Solar Cells, Akshay Urja (MNRE), 7(1), 10-13, 2013,

(<http://biomasspower.gov.in/document/Magazines/Akshay%20Urja/Vol%207,%20Issue%201-%20July-Aug%202013.pdf>)

5. Garg, H P and **S K Samdarshi**(2014) India: the Global Powerhouse of Renewable Energy?, **Renewable Energy 2014**, World Renewable Energy Network, Brighton, UK, 19-27. (*Invited*)
6. Vijay K. Jayswal*, V. V. Tyagi, Richa Kothari, D. P. Singh and **S. K. Samdarshi**(2016), Role and Initiatives of Indian Government Policies for Growth of Wind Energy Sector, Emerging Energy Alternatives for Sustainable Environment, D. P. Singh, Richa Kothari, and V. V. Tyagi(Editors), TERI, 99-116, 2016(ISBN- 978-81-7993-411-1)
7. Dr. A.S Bhattacharyya, Prof. **S. K. Samdarshi**, Dr. Sachin Kumar (Editors), Book of abstracts GEETAM 2019, LA LAMBERT Publications, Lap Lambert Academic Publishing, Mauritius(ISBN: 978-613-9-45755-7)

Invited Talks/Chair: International/ National Invited Talk (06/ 37) Chair (03/ 06) Judge (00/02)

Invited Talk/panelist/judge

International

1. Delivered an **invited talk** on “*HRD in Renewable Energy : Demand & Supply Gap*” on December 02, 2010 at International Congress on Renewable Energy(ICORE-2010), at Chandigarh, India
2. Delivered an **invited talk** on “*Strategies for improvement in the performance of photoactive metal-oxide nanomaterials*” on November 26, 2013at International Congress on Renewable Energy(ICORE-2013), at Bhubaneshwar, India.
3. Delivered an **invited talk** on “Energy Security Paradigm: Shift in the Critically Issues”at two days International conference BRIDGES 2015 held at BBA Central University Lucknow, India from January 16-17, 2015 .
4. Delivered an **invited talk** on “Phase-complexation and nano-structuration of metal oxide photocatalyst for visible light activity ” on December 16, 2015 at International conference on Energy and Environmental Impact on Biodiversity and Sustainable Development held between December15-17, 2015 at BRAB University, Muzaffarpur, Bihar.
5. Delivered an **invited talk** on “**New Role of metal-oxide nanomaterials in solar hydrogen production**” on March 07, 2017 at International Asia-Pacific Conference on Sustainable Energy & Environmental Technologies organized in Patna.
6. Presented a report on “**Innovation and Entrepreneurship: Status of Indian Higher Education Institutions and the way ahead**“ during Leadership for Academics Program(LEAP) at Nanyang Technological University, Singapore on February 18, 2019.

7. Delivered an invited talk on “**Solar water splitting for Hydrogen production**” during International conference on advanced material for energy science and technology (AMEST 2019) held from Feb 26-28, 2019.
8. Delivered invited talk during Expo Clean Energy 2023, Santiago, Chile on “ **Advances in Hydrogen Energy Technology policy in India**” on November 09, 2023 organized by Energy Centre, University of Chile, Santiago.
9. **Invited Plenary speaker** on “**Solar Cookers – Scope of innovation through a holistic performance parameter**” during **International Conference on Advances in Energy Research (ICAER)**, organized by IIT Bombay on Dec 13, 2023.

National

10. Delivered an **invited talk** on “*Scope of solar energy in North-East*” at a training program for Assam State administrative officers at NERIWALM in August 2006.
11. Delivered an **invited talk** on “*Achievements and technological challenges in photocatalytic detoxification of non-biodegradable organics*” at Silver Jubilee National Conference ICC-2007 at Mumbai.
12. **Judged** the poster session on Green Chemistry at Silver Jubilee National Conference ICC 2007 at Mumbai.
13. Delivered **invited talk** on “*New & Renewable energy and nanotechnology applications*” at UGC-DAE Consortium for Scientific Research, Indore on March 23, 2009.
14. Delivered **invited talk** on “*Solar photocatalytic hydrogen production*” at Short term course on Fuel Cell and Hydrogen Technology, Department of Chemical Engineering, Indian Institute of Technology, Guwahati on September 18, 2009.
15. Delivered an **invited talk** on “*Environment-friendly alternative energy sources*” at a workshop organized by Disaster Management Cell, Tezpur University on February 10, 2010.
16. Delivered an **invited talk** on “*Input for HRD needs in renewable energy sector from Department of Energy, Tezpur University*” on April 10, 2010 at the National Solar Mission workshop on “Capacity Building in Renewable Energy Technologies” organized by Ministry of New and Renewable Energy, New Delhi.
17. Delivered an **invited talk** on “*Developments in solar energy and energy materials*” on March 30, 2012 at a National workshop on “Solar energy and its applications” organized by NIT, Silchar.
18. Delivered an **invited talk** on “*Pristine mixed phase materials have potential to cross the upper limit of activity of photocatalyst?*” at National Conference on Recent Advances in Bio-energy Research organized by SSS-National Institute of Renewable Energy from December 7-8, 2012.
19. Delivered an **invited talk** on “*Polytypism in Metal Oxides: Advantage Visible Photocatalysis*” on April 07, 2013 at Reflux 2013 on theme “Cleaner Energy-Greener Tomorrow” organized by Department of Chemical Engineering, IIT, Guwahati.

20. Delivered an **invited talk** on “*An assessment of photoactivity of optimized mixed lattice metal oxide nanomaterials for solar energy and environmental applications*” on January 12, 2014 at RISE-2014 held at NIT, Silchar.
21. Delivered an **invited talk** on “*Test Procedures for Solar Thermal Collectors and Systems – The basic considerations*” on January 12, 2014 at RISE-2014 held at NIT, Silchar.
22. Delivered an **invited talk** on “*Solar Energy Through Mathematics*” on February 02, 2014 at National Conference on Applied Mathematics, held at Central University of Jharkhand, Ranchi
23. Delivered **invited talk** on “*Synthesis, characterization and performance evaluation of visible active multi-phasic metal-oxide nanoparticle systems for solar, energy and environmental applications*” at DST-SAP workshop on Solar Cell on March 15, 2014 held at BIT Mesra
24. Delivered an **invited talk** on “*Application of Solar Thermal Technologies with special reference to the North-Eastern States*” at training program on Importance of ground solar radiation data in the penetration of solar energy held at Guwahati on May 08, 2014 organized by Assam Power Distribution Company Limited, Assam State Electricity Board, Guwahati
25. Delivered an **invited talk** on “*Solar Thermal Technologies with Special Reference to Solar Radiation Resource*” at two days training program on Functioning and Maintenance of SRRA Station held from July 01-02, 2014 at Central University of Jharkhand, Ranchi
26. Delivered an **invited talk** on “Nano-metal oxides for solar and photocatalytic applications” a TEQUIPecture at UICT North Maharashtra University, Jalgaon, on January 20, 2015.
27. **Judged** the research work of the research scholars and faculty members on energy and materials of the “ Avishkar” initiative of North Maharashtra University, Jalgaon on November 22, 2015.
28. Delivered an **Invited talk** on **Solar energy–The future source of power**(Phase Complexation and Nanostructuring of New Generation Solar-active Nanomaterials) for the executives of Electronics Division, BHEL, Bangalore on April 16, 2016.
29. Delivered **invited talk** on **Solar energy materials for novel applications-New generation solar-active nanomaterials** at RTC College, Ranchi at one day seminar on Role of Power Electronics in Renewable Source of Energy Systems held on August 28, 2016.
30. Delivered an **invited talk** on **Solar water splitting for hydrogen production** at North Eastern Hill University(NEHU), Shillong on Feb 27, 2017 during National Conference on Renewable Energy Technology Utilization for Rural Development(NCRETURD) held from Feb 27-March 01, 2017.

31. Delivered an **invited talk** on “**Impact of phase-complexation and nano-structuration of photoactive nanoparticles on solar water splitting**” on February 25, 2017 at NIT, Silchar at Research Conclave on Recent Innovations in Science and Engineering (RISE 2017) during 24th – 26th March, 2017.
32. Delivered **invited talk** on “**Solar Thermal and Fuel Conversion – System Design and Performance**” on March 22, 2017 at **National Workshop on *Advances in Renewable Energy*** organized by Department of Mechanical Engineering at the Cambridge Institute of Technology, Ranchi, from March 21 -25, 2017.
33. **Panelist**, workshop on “Local coping mechanisms for Integrated Climate Resilience: Opportunities & Challenges for urban poor in Ranchi” organized by **Mahila Housing Sewa Trust (MHT)** in Hotel Chanakya BNR on June 07, 2017.
34. Delivered **invited talk** on “**Progress and challenges on Energy Education In Centre for Energy Engineering, Central University of Jharkhand, Ranchi**” during the round-table meet on December 13, 2017 at IIT Bombay.
35. **Keynote lecture** on “**Generalization of solar cooker thermal performance parameter and the test procedure**” during National Conference on Renewable Energy and Environmental Challenges, NCREEC-2018 organized by Department of Mechanical Engineering, NIT Jamshedpur from 26-27 Feb 2018.
36. Delivered **invited talk** on “**Phase and Structural Engineering at Nanoscale for Solar Hydrogen and Electricity**” during National Level workshop on Experimental Physics at BIT Mesra Ranchi June 22, 2018.
37. Delivered invited talk on “**Interdisciplinary Research Schemes**” during Faculty Development program at Amity University Ranchi on August 04, 2018.
38. Invited as an expert panelist to participate in IIT Bombay Diamond Jubilee workshop on “**Future of Energy Research and Education**” On December 13-14, 2018.
39. Delivered invited talk on “**Design and performance evaluation of nanomaterial systems for chemical and electrical energy conversion, and thermal system for cooking applications of solar energy**” On Feb 26, 2019 during International Conference on Advanced materials for Energy Science and Technology organized by Department of Energy Engineering, North-Eastern Hill University (NEHU), Shillong, Meghalaya during 26th – 28th February, 2019.
40. Invited participation in the workshop on “**Improving development outcomes in climate vulnerable areas through improved energy access**” on the 18th December 2019 organized by World Resources Institute(WRI) in Ranchi.
41. Invited lecture on May 28, 2020 on “**Entrepreneurship through Innovation and Research in Renewables: The Case of Solar Energy**” during webinar on Renewable Energy: Application and Entrepreneurship organized by Department of Mechanical Engineering, SSBT College of Engineering, Jalgaon, Maharashtra on May 27-30, 2020.

42. Invited lecture on July 13, 2020 on “ **Innovation and entrepreneurship in Solar Energy: Linkage with applied research in materials and system performance parameter for sustainability**” during webinar series on Research initiatives and current developments in renewable energy sources(Under TEQUIP III) organized by Girijanand Chowdhury Institute of Management and Technology, Guwahati in collaboration with Assam Science and Technology University(ASTU) from July 9-13, 2020.
43. Invited lecture on August 11, 2020 on “**Innovation, entrepreneurship and solar conversion systems**” during 5 International Webinar on Energy and Environment organized at Govt MLB Girls PG College, Indore(MP) from July 13-14, 2020.
44. Invited plenary talk on “**Photocatalytic route for Solar Fuel**” on December 12, 2020 at 28th National (Virtual) Conference on Condensed Matter Physics - Condensed Matter Days (CMDAYS20) organized by NIT Silchar from December 11-13, 2020.
45. Invited panelist during panel discussion on “**Just Transition in Jharkhand**” co-organized by Centre for Environment and Energy Development(CEED), New Delhi and CoE-GEET, CUJ, Ranchi on August 17, 2021
46. Invited lecture on “**New developments, and performance enhancement and evaluation tools of solar cooking and solar photocatalytic application systems**” on September 17, 2021 during the National Webinar on “ Recent Advances in Renewable Energy Technology” by Deptt of Mechanical Engg, North Eastern Regional Institute of Technology, Itanagar, Arunachal Pradesh, India
47. Invited lecture on “**Research, Innovation, and entrepreneurship: Science to Technology**” during the National Science Day seminar on “**Global Science for Global Well-being**”, on Feb 28, 2023 at Birsa Institute of Technology, Sindri, Jharkhand
48. Invited lecture on “**Role of Solar Energy in Clean Cooking and Process Heat Applications**” as a panellist during “**R&D Conclave on Renewable Energy**”, on April 11-12, 2023 at Akshay Urja Bhavan, Ministry of New and Renewable Energy(MNRE), New Delhi.
49. Invited lecture on Energy Security “ **Renewable Energy and Energy Security: India’s Opportunities**” during **G20 University Connect Engaging Young Minds lecture series** on March 06, 2023 organized by CUJ, Ranchi with Ministry of External Affairs and Research and Information System for Developing Countries(RIS), New Delhi.
50. Invited talk on “**Photocatalytic Materials for self-cleaning surfaces and water purification**” on August 01, 2023 at R& D Centre, Tata Steel, Jamshedpur.
51. Invited lecture on “**A generalized performance parameter for holistic(opto-thermal) evaluation of solar cooker designs and design-hybrids**” as a **BIS New Work Item Proposal** at 26th TC Meeting of MED04 Hosted by BIS_6 on Nov 08, 2023.
52. Invited expert for **televised discussion/interview** on **Doordarshan** on “**Pradhanmantri Suryoday Yojana**” on January 24, 2024.

53. Invited *Keynote lecture* on “**Solar photoactive materials for environmental remediation and clean fuel**” during **National Conference on Advanced Materials and its Applications(NCAMA) 2024** organized by National Institute of Advanced Materials and Technology(NIAMT) on Feb 09, 2024.

Chair

International

54. **Chaired** a session on December 16, 2016 at International conference on Energy and Environmental Impact on Biodiversity and Sustainable Development held between December 15-17, 2015 at BRAB University, Muzaffarpur, Bihar.
55. **Chaired** a session at International Asia-Pacific Conference on Sustainable Energy & Environmental Technologies organized in Patna on March 08, 2017.
56. **Chaired** a session during “**International Conference on Nuclear, Particle and Accelerator Physics (ICNPAP-2018)**” to held from October 23-26, 2018 at Central University of Jharkhand, Ranchi

National

57. **Chaired** a session on “*Green Chemistry*” at Silver Jubilee National Conference ICC 2007 at Mumbai.
58. **Chaired** a session on “*Solar Energy Conversion*” at National conference on Renewable Energy(NCRE-2010) held from March 22-25, 2010 at Tezpur University, Tezpur .
59. **Chaired** a session on “*Energy and Environment*” during National Seminar on “Climate Change and Sustainable Development with reference to India” held from April 1-3, 2010 at Tezpur University, Tezpur, India.
60. **Chaired** the opening session of the Round Table discussion on **Renewable Energy as Sustainable Alternative organized** by Centre for Environment and Energy Development(CEED) and OXFAM India on March 17, 2016 at Ranchi.
61. **Chaired** a session on Feb 27, 2017 during National Conference on Renewable Energy Technology Utilization for Rural Development(NCRETURD) held from Feb 27-March 01, 2017 at North Eastern Hill University(NEHU), Shillong.
62. **Chaired** special session“**Hydrogen production, storage, sensing and fuel cells**” on December 11, 2020 at 28th National (Virtual) Conference on Condensed Matter Physics - Condensed Matter Days (CMDAYS20) organized by NIT Silchar from December 11-13, 2020.

Consultancy: 2 Private and 2 Public sector

- Testing of Solar FPC, and development of Solar distillation system for M/S Jain Irrigation Systems Ltd., Jalgaon (Maharashtra)
- Development of Solar Tobacco Barn in collaboration with SEC, New Delhi for Tobacco Board, India
- Third Party inspection of ~2000 Homelight systems in North Lakhimpur, and Dhemaji districts of Assam, India.

Sponsored Project handling: PI (6 Major R&D projects) Co-PI (2 Major R&D Projects)

Sl. No.	Details of project	Agency	Amount (Rs.)
1.	Development of novel Collection and Storage Device for Intermediate Temperature (PI)	AICTE (8017/RDII/BOR/95/Rec 688 (Part II) (1997-2001))	5.00 Lakh
2.	A Model Energy Park at North Maharashtra University, Jalgaon (PI)	MNRE (F.No. 49/300/98-SADP) + NMU (1998-2000)	2.50 Lakh
3.	Design, development and performance evaluation of actinic photocatalytic detoxification system for direct environmental application of solar energy (PI)	UGC (F10-31/201 (SR-I)) (2001-2004)	~5.00 Lakh
4.	Preparation, Characterization and performance analysis of the catalysts in a Fixed-Bed Solar Photocatalytic Reactor for Degradation of Azo-Dyes (AICTE Sponsored)	AICTE (8023/RID/NPROJ/RPS-51/ 2004-2005)	16.50 Lakh
5.	Development of Alkaline Fuel Cell Electrode incorporating Carbon nanomaterials (AICTE Sponsored) 2009-11	AICTE (8023/BOR/RID/RPS-35/ 2008-09)	17.00 Lakh
6.	Synthesis and Characterization Of Carbon Nano materials (CNM) From plant based precursors and investigation of their utility as Fuel Cell electrode (DST Sponsored) 2009-11	DST (SR/S3/ME/049/2007 dated 27th June 2008)	27.26 Lakh
7.	Solar Radiation Resource Assessment Station Instruments	MNRE, New Delhi (2014-2019)	~ 40.00 Lakh
8.	Centre of Excellence in Green and Efficient Energy Technology (CoE-GEET) (MHRD Sponsored) (2014-18, 2018-2020, 2020-2021)	MHRD (F.No. 5-5/2014- TS.VII dated 4th September 2014) (2014-2021)	250.00 Lakh

9.	Performance analysis of novel Bismuth oxide based nanocomposite photocatalyst in multidimensional matrix	UGC DAE CSR CRS Project (letter no. CRS/2021-22/01/403 dtd March 30, 2022)(2022-25)	15.00Lakh
----	--	---	-----------

Institutional Project handling: *PI (6 Major projects)*

- A Model Energy Park at North Maharashtra University, Jalgaon (*MNES Sponsored*)
- Installation of different types of Solar Water Heating Systems of about 10000 lpd capacity at NMU, Jalgaon. (*~Rs 18.00 lakh, NMU sponsored*)
- Installation of Solar Water Heating Systems of capacity ~14500 lpd at TU, Tezpur (*~ Rs 20.50 Lakh, MNRE and TU sponsored*)
- Establishment of 1 kW_p off-grid Solar PV Power Plant at Tezpur University, Tezpur (*~Rs 1.50 lakh, MNRE and TU sponsored*).
- Awarded a project for installation of 4 KW Wind-PV hybrid systems by MNES at NMU, Jalgaon (*Rs 9.00 lakh, MNRE sponsored*).
- Establishment of **Solar Radiation Resource Assessment(SRRA)** station at CUJ, Ranchi (*~Rs 40 lakh, MNRE Sponsored*).

Significant Contribution in R&D: *Computer models, Exptl. Systems, Materials&Processes*

- **Heat Transfer in Solar Thermal Collectors**
 - Development of generalized model, analytical in nature, for calculation of heat losses in flat Plate collectors with 1, 2, and N Glass covers and tubular collectors including ETC.
- **Solar Pond Design, Simulation and Establishment**
 - Establishment of First Solar Pond in Eastern India
 - Development of a detailed computer simulation model for performance study of solar pond.
 - Formulation of a method for optimization of the non-convective zone of a maturing salt gradient solar pond.
 - Simplification of relations for estimating the radiation transmission in the solar pond
 - Investigations on combined effect of turbidity and reflectivity and establishing the complementary nature of both the parameters.
- **Generic Thermal Performance Parameter and Test Procedure for solar Cookers**
 - Proposed Objective Parameters to facilitate a user in selection and utility of solar cookers of different types and designs based on the Thermal Performance Parameter(TPP) rating.
 - Developed a robust and type/design independent generic TPP, COR(cooker opto-thermal ratio) and test procedure(TeP) for solar cookers.
 - Developed experimental procedure and technique to determine effective concentration ratio for solar cookers using COR.

- Developed the method with an alternative procedure and test loads to rate intermediate temperature cookers employing COR.
- Design of solar cooker for assured cooking under sudden reduction in irradiance level.
- Performance evaluation of novel designs of solar cookers developed in different countries through global collaboration
- Novel internal retrofitted radiative control with more than 6% enhancement in different performance parameters with minimal cost implications
- Carried out detailed analysis of limitations of different thermal performance parameters and robustness of COR as a holistic and inclusive parameter
- **Visible Active Solar Photoactive Materials and Systems:**
 - Developed visible active Ag/TiV oxide photocatalyst with high photoactivity.
 - Identified and explained the unique photogenerated charge transfer mechanism responsible for high activity of mixed phase titania photocatalyst in visible as well as UV radiation in terms of interface mechanism. This phenomenon has been further substantiated and cited by other researchers in a number of high impact factor journals.
 - The interface mechanism was substantiated by synthesizing biphasic ZnO with a metastable phase using unique NIP technique and later by developing biphasic Ceria homo-composite and ceria based hetero-composite photocatalysts with high visible light activity.
 - For the first time proposed a method to determine *Microbicidal Photonic Efficiency* which will be useful in designing of photocatalytic disinfection reactor.
 - Established the utility of Taguchi Robust Technique in data reduction as well as photocatalytic process and reactor design optimization.
 - Developed thermo-photocatalyst based on ceria and rGO-ceria system
 - Proposed novel generic mechanism, uniquely correlating photo-thermo-catalytic activities of oxide photocatalyst systems
 - Developed niobia based photocatalyst system and demonstrated dependence of its activity on electrokinetic potential in aqueous media.
- **Nanomaterials for Advanced Energy Applications**
 - Development of Carbon Nanomaterials (Carbon nano tubes CNT, Carbon microtubes CMT) from plant based green precursors for energy applications. Development of these materials(CNT, CNM) using PP and PET waste which results in valorization of environmental hazard.
 - Oxide nanoparticles based heterogeneous antioxidants for increasing shelf life of degradable biofuels.
 - Developed hydrogenated titania nanorods based highly photoactive electrodes for solar photoelectrochemical hydrogen generation
- **New Generation Photovoltaics**
 - Development of an active electron collector for Dye-sensitized Solar Cells(DSSC) based on TiO₂

- Development and fabrication of f-MWNT based improved architecture for Organic PV Cell.
- Development of low cost Cu-Titania based DSSC solar cells
- **Energy Policy, Management and Security**
 - Energy supply security
 - Renewable energy policy and regulations including generation(genco), and distribution(discoms)
 - Energy security, transition and justice
- **Other developmental activities**
 - Establishment of First Institutional Energy Park in Northern Maharashtra.
 - Conception, installation and commissioning of different types of Solar Water Heating Systems of about 10000 lpd capacity at NMU, Jalgaon.
 - Establishment of 1 kW_p off-grid Solar PV Power Plant at Tezpur University, Tezpur.
 - Conception and installation of 14000 lpd solar water heating system at Tezpur University, Tezpur.
 - Awarded a project for installation of 4 KW Wind-PV hybrid systems by MNES at NMU, Jalgaon.
 - Establishment of Solar Radiation Resource Assessment(SRRA) station at CUJ, Ranchi
 - Establishment of 500 kW_p grid-connected Solar PV Power Plant at Tezpur University, Tezpur.

Guidance: 13+3 Ph.D., 37 M.Tech., 25 M.Sc. & B.Tech.

Students' Achievements: Awards; Placement; Fellowships

- Investigations on design and performance of solar devices for energy and environmental applications(*P. S. Patil, 2005, completed*)
- Investigation on solar pond for photothermal and photocatalytic detoxification application(*M.Hussain, 2005, Completed*)
- Parametric studies on solar photothermal and photodetoxification systems(*S. R. Patil, 2006, Completed*)
- Thermal performance parameters of solar cookers: a study leading to generalization(*P.J.Lahkar, 2012, Completed*)
- Synthesis of carbon nanotubes from plant based precursors and their application in organic photovoltaic cells and bio-diesel storage(*Samrat Paul, 2012, Completed*)
- Mixed phase titania based visible active photocatalyst for solar energy applications(*R.G. Nair, 2013, Completed*)
- Synthesis and characterization of metal oxide visible active photocatalyst for solar energy application(*BijuMani Rajbongshi, 2016, Completed*)
- Development of structure-engineered mono/biphasic nanoscale photocatalyst systems and investigation of their solar photocatalytic activity/hydrogen generation potential(*Anjalu Ramchiary, 2016, Completed*)
- Characterization and performance studies on visible active metal oxide polymorphs for solar energy applications(*Ranjana Verma, 2017, Completed*)
- Generalization of the test standards for intermediate temperature solar cookers and its utilization for investigations on design parameters and variations(*Atul A Sagade, 2019, Completed*)
- Study of impact of nano-structuration and nano-compositization on the photocatalytic activity of niobium pentoxide for solar energy and environmental applications (*Neha Kumari, 2023, Completed*)
- Synthesis and Thermo-photoactivity Analysis of Nanostructured Tungsten Oxide and its Composites(*Kumar Gaurav, 2023, Completed*)
- Performance Development and analysis of the thermal performance parameter and test procedure for advanced continuous solar cooker (*Partha Sarathi Panja, 2019*)
- Analysis of novel Bismuth oxide based nanocomposite photocatalyst in multidimensional matrix(*Tripurari Kumar Harsh, since 2021*)
- An assessment of the operational and financial aspects of the power distribution sector for the Indian state of Jharkhand(*Shubham Sanyal, since 2021*)
- Solar cooker carbon mitigation potential and load capacity: Identification, analysis and utility of the objective parameters derivable from Cooker Opto-thermal Ratio (COR)(*Rahbar Jamal, Since 2021*)

- i. **Mr Tripurari Kumer Harsh R/S** received CRE scholarship of UGC-DAE Consortium for Scientific Research for a duration of three years
- ii. **Mr Atul A Sagade, R/S**, received Solar Energy Research Centre(SERC) post-doctoral fellowship of SERC, Chile in 2020 with a provision for three years' duration.
- iii. **Ms Neha Kumari, R/S**, received National Renewable Energy Fellowship (**NREF-SRF-2018**) of MNRE, New Delhi
- iv. **Mr Kumar Gaurav, R/S**, received National Renewable Energy Fellowship (**NREF-SRF-2018**) of MNRE, New Delhi
- v. **Ms Ranjana Verma, R/S**,received **National Post-doctoral Fellowship** to work under Professor Rajiv Prakash, Indian Institute of Technology-BHU, Varanasi, India in 2019
- vi. **Ms Ranjana Verma, R/S**,received **Dr D S Kothari Post-doctoral Fellowship** of University Grants Commission, India, in 2019, tenable in Indian Universities and National Laboratories.
- vii. **Ms Bijumani Rajbongshi, R/S**, received **National Post-doctoral Fellowship** to work in Department of Chemical Technology, Indian Institute of Technology, Delhi, India in 2017
- viii. **Mr. Samrat Paul, R/S**, received **Young Scientist Award** of Indian Science Congress Association during **Indian Science Congress 2012** held at Bhubaneshwar at the hands of former President Dr A P J Abdul Kalam.
- ix. **Mr. Ranjith. G. Nair, R/S**, received fellowship to work with Dr. Hubert Mutin, CNRS Research Director, Chimie Moleculaire et Organisation du Solide, Universite de Montpellier, France under **Indo-French Sandwich PhD fellowship** program - 2011.
- x. **Mr. Ranjith G. Nair, R/S**,received National Renewable Energy Fellowship (**NREF-SRF-2011**) of MNRE, New Delhi
- xi. **Mr. Samrat Paul, R/S** received the **Swaran Jayanthi Puraskar for the Best Paper** in the Physical Sciences section of the **Annual Session of National Academy of Sciences India**held at **Jaipur from December 2-4, 2010**at the hands of Dr M.G.K. Menon, Scientific Advisor, ISRO, Department of Space, India
- xii. **Mr. Ranjith G. Nair, R/S** received the best paper award in the poster session of Engineering section of **97th National Science Congress held at Thiruananthpuram from January 03-07, 2010**at the hands of Dr. Madhvan N. Nair, Former Chairman, ISRO, India.
- xiii. **Mr.Samrat Paul, R/S** received the best paper award in the poster session of Engineering section of **96th National Science Congress held at Shillong from January 03-07, 2010**.
- xiv. **Mr. Samrat Paul, R/S**, received National Renewable Energy Fellowship (**NREF-SRF-2010**) of MNRE, New Delhi

xv. **Mr P. J. Lahkar**, R/S, received **JBNSTS, FIST-DST Fellowship** under which he visited Solar Heat Transfer laboratory, CES, IIT Delhi from June 1- June 30, 2009.

xvi. **Dr Prashnat S Patil**, R/S, received **SERC Fast Track Young Scientist Project Award** in 2007.

Awards/Scholarships: *National Merit, UGC, CSIR, GATE, IIT, LEAP*

- **National Merit Scholarship** during entire academic career,
- Indian Institute of Technology Research fellowship,
- **CSIR-JRF**(Junior Research Fellowship),
- Qualified **NET-JRF**, and
- Qualified GATE examination.
- Awarded **Best Organizer Award** of BRCA, IIT, Delhi
- Leadership in Academics Program(**LEAP**), MHRD, New Delhi
- Awarded “**Best Teacher Award**” of Indian Society of Technical Education (ISTE) Bihar-Jharkhand 2024

Memberships: *Professional Societies*

- Life member-Solar Energy Society of India(LM 336)
- Life member-Indian Science Congress Association(L13942)
- Life Member-Indian Society for Technical Education(LM 65392)

Training: *Disaster Management , Academic Leadership*

- Underwent training on “*Solar Energy: Use in Disasters and for Energy Security*” organized by Florida Solar Energy Center, at World Renewable Energy Congress, Denver, Colorado, USA on August 29, 2004.
- Underwent training under “*LEAP program*” of MHRD, New Delhi from February 4-23, 2019 at National Institute of Technology, Thiruchirapalli; Indian Institute of Information Technology, Sricity; and Nanyang Technological University, Singapore.

Seminar/Conference/Workshop/Training Organization: *03(Regional 01, National 02, International 01)*

- Organized a United States Educational Foundation of India sponsored one day seminar on “Gender and Energy Use” as *Principal Coordinator*. The seminar was co-sponsored by BHEL, New Delhi and SBI, Tezpur on November 11, 2005
- Initiated observing Rajiv Gandhi Akshay Urja Divas on August 20, 2008.
- Chairman, Organizing Committee, National Conference on Renewable Energy-2010 from March 23-25, 2010 organized by Department of Energy, Tezpur University, Tezpur
- Organizing Secretary, International Congress on Renewable Energy(ICORE-2011), the annual flagship event of Solar Energy Society of India(SES) co-organized from November 02-04, 2011 at Tezpur University, Tezpur, Assam, India

- President, Organizing Committee, Orientation Training of NSS Programme Officers of Bihar & Jharkhand held from May 27-Jun 02, 2014 at Central University of Jharkhand.
- Chairman, Organizing committee, Workshop on “ Performance and maintenance of SRRA stations” for states of Jharkhand, Bihar, Orissa, Chhatisgarh, and West Bengal held on July 01-02, 2014.
- Member, CUJ Committee on preparation of proposal for AICTE Approval for course and fellowship.
- Member, National Advisory Committee, National Conference on Renewable Energy Technology Utilization for Rural Development(NCRETURD) held from Feb 27-March 01, 2017at North Eastern Hill University(NEHU), Shillong.
- Member, National Advisory Committee, 11th Asia Pacific Conference on Sustainable Energy and Environment Technology(APCSEET), March 6-10, 2017, Muzaffarpur, Bihar (<http://brabu.org.in/apcseet2017>)
- Member, National Advisory Committee, International Conference on Renewable Energy for Sustainable Environment: Challenges and Remedies (ICRESE 2017), held from March 20-21, 2017 at SMVDU, Katra, Jammu and Kashmir
- Co-convener, National conference on “Repowering Jharkhand: Assessment of Solar power potential of Ranchi and Jamshedpur” on August 10, 2018 co-organized by Department of Energy Engineering, CUJ and CEED, New Delhi on August 10, 2018(<http://cu.ac.in/PR10Aug2018.php>)
- Chairman, International Conference on Green and Efficient Energy Technology and Materials(GEETAM 2019) organized from March 06-09, 2019 by CoE-GEET, Central University of Jharkhand, Ranchi.
- Convener, International workshop on “Energy Policy Initiatives in Jharkhand” organized on January 08, 2020 corganzed with ISEP, John Hopkins University, USA.(<https://sais-isep.org/news/isep-signs-mou-with-central-university-jharkhand-cuj-till-2022>)
- Organized an online discussion with World Bank on the topic "Clean energy and energy transition in Jharkhand" on November 23, 2020
- Organized a Seminar-cum-brainstorming on “Establishment of Centre of Excellence on Energy Storage” in Jharkhand on January 18, 2023 with Department of Higher and Technical Education, Government of Jharkhand, Ranchi

Visits Abroad: 1 USA, 1 Singapore

- Visited Denver, Colorado, USA to attend World Renewable Energy Congress-VIII during August-September, 2004 during which attended a training program on “Use of Solar energy in disaster management and energy security” organized by Solar Energy Centre, University of Florida.
- Visited National Renewable Energy Laboratory(NREL), Golden, Colorado, USA in September 2004.
- Visited Nanyang Technological University, Singapore under LEAP program from Feb 17-24, 2019.