

## *Curriculum Vitae*

### **Sadhan Mahapatra**

**Department** : Energy  
**University** : Tezpur University  
**Designation** : Professor  
**Date of Birth** : 04th January, 1972  
**Gender** : Male  
**Marital Status** : Married

#### **Education**

##### **PhD**

Indian Institute of Science, Bangalore, 2016

*PhD Topic: Experiments and Analysis on Wood Gasification in an Open Top Downdraft Gasifier*

Supervisor: Prof S Dasappa

##### **MTech (Energy Science & Technology)**

Jadavpur University, 1997 (University Gold Medal)

*MTech Project : A Study on Performance Analysis of a Slow Speed Wind Turbine*

##### **MSc (Physics)**

Visva Bharati, 1994

#### **Professional Experience**

##### *Academic Position*

2019 –	Professor	Tezpur University
2010 – 2019	Associate Professor	Tezpur University
2006 – 2010	Assistant Professor	Tezpur University
2002 – 2006	Lecturer (Sr. Scale)	Tezpur University
1997 – 2002	Lecturer	Tezpur University

Source	h-index	Citations	Highest Citations
Scopus	20	1533	214
Google Scholar	22	2302	261

*Sadhan*

## Research Interest

Biomass gasification  
 Climate responsive buildings and thermal comfort  
 Decentralized energy systems  
 Photovoltaic systems

## Teaching

Energy Management and Auditing  
 Energy Efficient Buildings  
 Hybrid Renewable Energy Systems Design  
 Wind and Hydro Energy  
 Renewable Energy Resources and Systems  
 Solar Photovoltaic Energy Conversion

## Research Areas

### A. Biomass Gasification

Gasification, a sub-stoichiometric combustion process, converts solid fuel to gaseous fuel. Unlike in combustion, where the primary intention is to release all the energy as sensible heat, in the case of gasification, the energy of solid fuel is transferred to combustible gaseous species. The entire process occurs under fuel rich conditions. In the case of a packed bed, depending upon the air flow rate, the propagation flame front moves into the virgin fuel. The propagation rate, which is influenced by air flow, combustion and heat transfer, depends on the fuel properties like size, density, thermal conductivity, moisture content, ash content and calorific value. Our work focuses on the experiments and numerical analysis towards establishing the effect of air mass flux on the propagation rate, bed temperature, gas composition and related aspects under the sub-stoichiometric operating conditions in downdraft packed bed configuration. It is important to state that the combustion processes occurring in a packed bed are a resultant of both homogeneous and heterogeneous reaction processes. Depending upon the air flow rate for a given volume and surface area of the bed, the overall process varies between gasification (rich) and combustion (lean) regimes. The broad areas in this field are establishment of the operating regime of downdraft gasification systems, production of hydrogen generation and electricity generation by using biomass gasification systems etc.

*Sadhan Mahapatra*

## **B. Climate Responsive Buildings and Thermal comfort**

Climate responsive building design is a concept that integrates the micro-climate and architecture with human thermal comfort conditions. This concept takes into account the solar passive techniques, micro-climatic conditions and thermal comfort conditions that improve the building's energy efficiency. Thermal comfort not only makes the occupants comfortable but also decides the energy consumption in the building. Naturally ventilated vernacular architecture of North-Eastern India which perfectly represents the principle of climate-oriented architecture still lacks experimental validation and quantitative analysis. Our study starts with climatic classification of the entire northeast region into three bioclimatic zones (warm and humid, cool and humid and cold and cloudy), thermal performance analysis of the vernacular buildings of the region. Since, it is not possible to monitor all the buildings due to limited accessibility; so a predictive formula has been developed to predict the indoor temperature of these buildings. Our study also focused on developing adaptive thermal comfort models and energy performance analysis of these buildings at different climatic zones.

## **C. Decentralized Energy Systems**

Access to Energy to every household is a great challenge in India. Low load factors, long distribution lines, low load densities and associated high transmission and distribution losses make many of the rural electrification programmes economically unattractive. During grid availability, the supply is found to be erratic and poor quality. This calls for the need of hybrid decentralized power systems, which can cater to local communities in a much more effective manner. Apart from providing better quality of life to rural communities, it could have a significant effect on the livelihood of the rural economy. Harnessing energy from solar photovoltaic and biomass gasification routes could be the most promising towards access to electricity. Decentralized power system is the most viable option for isolated sites that are located far off from the existing grid supply. This would involve accelerating the overall development of the underdeveloped areas with a number of programs like entrepreneurship development and employment generation opportunities. Hybrid energy systems (PV, biomass gasification etc.) can also integrate with grid based electricity to make the system cost effective and reliable.

*Sadhan Mahapatra*

## D. Photovoltaic Systems

The National Solar Energy Mission has an ambitious target of 100 GW Solar Power by the year 2022. This translates to a large number of PV power plants installations in the country. Different module technologies' performance at various climatic zones within India differs due to the variation in solar radiation spectrum and ambient temperature. Our work primarily focused on the module performance in different climatic zones in the country, suitability of types of module technology for different locations, dust effect on the module power output, mismatch losses due to the shading of the cells or modules and simulation based performance evaluation of large grid connected power plants.

## Publications

### International Journal

- [1] Ujjiban Kakati, Anil Kumar Sakhiya, Paramjeet Baghel, Akshit Trada, **Sadhan Mahapatra**, Darshit Upadhyay, Priyanka Kaushal. Sustainable utilization of bamboo through air-steam gasification in downdraft gasifier: Experimental and simulation approach. **Energy**, 252, 124055 2022. <https://doi.org/10.1016/j.energy.2022.124055>
- [2] Samar Das, Pranay Kumar Sarkar, **Sadhan Mahapatra**. Single particle combustion studies of coal/biomass fuel mixtures. **Energy**, 217, 119329, 2021. <https://doi.org/10.1016/j.energy.2020.119329>
- [3] S. M. Iftiqar, S. Najes Riaz, **Sadhan Mahapatra**. Simulation of Growth of Silicon Thin Films on Textured and Non-textured Surface: A Comparative Study. **Silicon**, 13(8), 2021, 2701-2713. <https://doi.org/10.1007/s12633-020-00624-w>
- [4] Bhaskar Jyoti Medhi, Anugrah Singh, Ashish Kumar Thokchom, **Sadhan Mahapatra**. Experimental and computational study on flow over stepped spillway. **Journal of Mechancial Science and Technology**, 2019, 33(5), 2101-2112. <https://doi.org/10.1007/s12206-019-0116-5>
- [5] Manoj Kumar Singh, Ryoza Ooka, Hom B Rijal, Sanjay Kumar, Anuj Kumar, **Sadhan Mahapatra**. Progress in thermal comfort studies in classrooms over last 50 years and way forward. 2019, **Energy and Buildings**, 2019, 188-189, 149-174 <https://doi.org/10.1016/j.enbuild.2019.01.051>

*Sadhan Mahapatra*

- [6] Samar Das, Pranay Kumar Sarkar, **Sadhan Mahapatra**. Thermodynamic optimization of coal-biomass co-gasification process by using non-stoichiometric equilibrium modeling. **Materials Today: Proceedings**, 2018, 5 (11/P2), 23089-23098  
<https://doi.org/10.1016/j.matpr.2018.11.039>
- [7] S. Snehesh, H.S. Mukunda, **Sadhan Mahapatra**, S. Dasappa. Fischer-Tropsch route for the conversion of biomass to liquid fuels - Technical and economic analysis. **Energy**, 2017,130; 182-191.<https://doi.org/10.1016/j.energy.2017.04.101>
- [8] Rumi Rajbongshi, Devashree Borgohain, **Sadhan Mahapatra**. Optimization of PV-biomass-diesel and grid base hybrid energy systems for rural electrification by using HOMER. **Energy**, 2017, 126, 461-464.<https://doi.org/10.1016/j.energy.2017.03.056>
- [9] Mayur Barman, **Sadhan Mahapatra**, Debajit Palit, Mrinal K Chaudhury. Performance and impact evaluation of solar home lighting systems on the rural livelihood in Assam, India. **Energy for Sustainable Development**, 2017, 38, 10-20.  
<https://doi.org/10.1016/j.esd.2017.02.004>
- [10] Shyamal K. Das, **Sadhan Mahapatra**, Homen Lahan. Aluminium-ion Batteries: Developments and Challenges. **Journal of Materials Chemistry A**, 2017, 5, 6347-6367.  
<https://doi.org/10.1039/C7TA00228A>
- [11] Baishali Talukdar, Sukanya Buragohain, Sanjai Kumar, V Umakanth, Nabin Sarmah, **Sadhan Mahapatra**. Effect of spectral response of solar cells on the module output when individual cells are shaded. **Solar Energy**, 2016,137; 303-307.  
<https://doi.org/10.1016/j.solener.2016.08.032>
- [12] Manoj Kumar Singh,S. Attia, **Sadhan Mahapatra**, J. Teller. Assessment of thermal comfort in existing pre-1945 residential building stock. **Energy**, 2016, 98, 122-134.  
<https://doi.org/10.1016/j.energy.2016.01.030>
- [13] **Sadhan Mahapatra**, S Kumar, S. Dasappa. Gasification of wood particles in a co-current packed bed: Experiments and model analysis. **Fuel Processing Technology**. 2016; 145, 76-89. <https://doi.org/10.1016/j.fuproc.2016.01.032>
- [14] M. K. Singh, **Sadhan Mahapatra**,J. Teller,Development of thermal comfort models for various climatic zones of North-East India. **Sustainable Cities and Society**, 2015; 14, 133-145.<https://doi.org/10.1016/j.scs.2014.08.011>



- [15] Pallavi Borah, M K Singh, **Sadhan Mahapatra**. Estimation of degree-days for different climatic zones of North-east India. **Sustainable Cities and Society**, 2015; 14, 70-81.  
<https://doi.org/10.1016/j.scs.2014.08.001>
- [16] Rishi R Borah,D Palit, **Sadhan Mahapatra**. Comparative Analysis of Solar Photovoltaic Lighting Systems in India, **Energy Procedia**, 2014;54,680-689.  
<https://doi.org/10.1016/j.egypro.2014.07.309>
- [17] Singh M. K., **Sadhan Mahapatra**, J. Teller. Relation between indoor thermal environment and renovation in Liege residential buildings. **Thermal Science**, 2014;18(3): 889-902.  
<https://doi.org/10.2298/TSCI1403889S>
- [18] **Sadhan Mahapatra**, S. Dasappa. Experiments and analysis of propagation front under gasification regimes in a packed bed. **Fuel Processing Technology**. 2014; 121, 83-90.  
<https://doi.org/10.1016/j.fuproc.2014.01.011>
- [19] **Sadhan Mahapatra**, S. Dasappa. Influence of surface area to volume ratio of fuel particles on gasification process in a fixed bed. **Energy for Sustainable Development** 2014, 19, 122-129. <https://doi.org/10.1016/j.esd.2013.12.013>
- [20] Manoj Kumar Singh. **Sadhan Mahapatra**. J Teller. An analysis on energy efficiency initiatives in the building stock of Liege, Belgium. **Energy Policy** 2013; 62, 729-741.  
<https://doi.org/10.1016/j.enpol.2013.07.138>
- [21] **Sadhan Mahapatra**, S. Dasappa. Rural electrification : Optimizing the choice between decentralized renewable energy sources and grid extension. **Energy for Sustainable Development** 2012; 16(2), 146-154.<https://doi.org/10.1016/j.esd.2012.01.006>
- [22] Manoj Kumar Singh. **Sadhan Mahapatra**. S. K. Atreya. Solar passive features in vernacular architecture of North-East India. **Solar Energy** 2011: 85(9), 2011-2022.  
<https://doi.org/10.1016/j.solener.2011.05.009>
- [23] Manoj Kumar Singh. **Sadhan Mahapatra**. S. K. Atreya. Adaptive thermal comfort model for different climatic zones of North-East India. **Applied Energy** 2011: 88(7), 2420-2428.  
<https://doi.org/10.1016/j.apenergy.2011.01.019>
- [24] Manoj Kumar Singh. **Sadhan Mahapatra**. S. K. Atreya. B Givoni. Thermal monitoring and indoor temperature modeling in vernacular buildings of North-East India. **Energy and Buildings** 2010: 42(10); 1610-1618.<https://doi.org/10.1016/j.enbuild.2010.04.003>



- [25] Manoj Kumar Singh. **Sadhan Mahapatra**. S. K. Atreya. Thermal performance study and evaluation of comfort temperatures in vernacular buildings of North-East India. **Building & Environment** 2010:45(2), 320-329. <https://doi.org/10.1016/j.buildenv.2009.06.009>
- [26] **Sadhan Mahapatra**, H. N Chanakya, S. Dasappa. Evaluation of various energy devices for domestic lighting in India: technology, economics and CO<sub>2</sub> emissions. **Energy for Sustainable Development** 2009:13(4), 271-279  
<https://doi.org/10.1016/j.esd.2009.10.005>
- [27] Manoj Kumar Singh. **Sadhan Mahapatra**. S. K. Atreya. Bioclimatism and Vernacular Architecture of North-East India. **Building & Environment** 2009: 44(5), 878-888.  
<https://doi.org/10.1016/j.buildenv.2008.06.008>
- [28] Manoj Kumar Singh. **Sadhan Mahapatra**. S. K. Atreya. Development of Bio-climatic zones in North-East India. **Energy & Buildings** 2007:39(12), 1250-1257  
<https://doi.org/10.1016/j.enbuild.2007.01.015>.
- [29] **Sadhan Mahapatra**. S Neogi. Iterative Model for the Performance Evaluation of a Horizontal Axis Wind Turbine. **Wind Engineering** 2002: 26(2), 109-116.  
<https://doi.org/10.1260/030952402761699287>

### Book (edited)

- [30] **Mahapatra S.**, Shahbaz M., Vaccaro A., Emilia Balas V. (eds) Advances in Energy Technology, **Springer**. 2020. [doi.org/10.1007/978-981-15-8700-9](https://doi.org/10.1007/978-981-15-8700-9)
- [31] Samdarshi S K., **Mahapatra S.**, Paul S. Renewables: Growth through Academia-Industry Interface, Proceedings of International Conference on Renewable Energy (ICORE 2011), Solar Energy Society of India, New Delhi, 2011.

### Book Chapters

- [32] M Bardalai, B Das, PP Dutta, **Sadhan Mahapatra**. (2021). Thermal performance study of bamboo and coal co-gasification in a downdraft gasifier. In: Das B., Patgiri R., Bandyopadhyay S., Balas V. E. (eds). Modeling, Simulation and Optimization. Smart Innovation, Systems and Technologies, vol 206, pp 15-28, Springer.  
[https://doi.org/10.1007/978-981-15-9829-6\\_2](https://doi.org/10.1007/978-981-15-9829-6_2).

*Sadhan Mahapatra*

- [33] Adity Bora, **Sadhan Mahapatra**. (2021). Tar Generation in Open-Top and Closed-Top Downdraft Gasifiers. In: Mahapatra S., Shahbaz M., Vaccaro A., Emilia Balas V. (eds) *Advances in Energy Technology*, Springer, pp. 115-125.  
[https://doi.org/10.1007/978-981-15-8700-9\\_11](https://doi.org/10.1007/978-981-15-8700-9_11)
- [34] Chandan Kumar, **Sadhan Mahapatra**. (2021). Effect of Fuel Properties on Reaction Front in an Open-Top Downdraft Gasifier. In: Mahapatra S., Shahbaz M., Vaccaro A., Emilia Balas V. (eds) *Advances in Energy Technology*, Springer, pp. 133-141.  
[https://doi.org/10.1007/978-981-15-8700-9\\_13](https://doi.org/10.1007/978-981-15-8700-9_13)
- [35] Sanzida Tasmin Ali, Pallabi Borah, **Sadhan Mahapatra**. (2021). Site-Specific Design Optimization of Wind Turbines at Low Wind Speed Sites of North-East India. In: Mahapatra S., Shahbaz M., Vaccaro A., Emilia Balas V. (eds) *Advances in Energy Technology*, Springer, pp. 179-188. [https://doi.org/10.1007/978-981-15-8700-9\\_17](https://doi.org/10.1007/978-981-15-8700-9_17)
- [36] Deepjyoti Barman, Samar Jyoti Hazarika, **Sadhan Mahapatra**. (2021). Energy Performance Assessment of Gas-Based Thermal Power Plants. In: Mahapatra S., Shahbaz M., Vaccaro A., Emilia Balas V. (eds) *Advances in Energy Technology*, Springer, pp. 203-210.  
[https://doi.org/10.1007/978-981-15-8700-9\\_19](https://doi.org/10.1007/978-981-15-8700-9_19)
- [37] Tripathi P. **Mahapatra S.** Dasappa S. (2020). Estimation and characterization of Tar from an open-top downdraft gasifier. In Editor(s) S. Singh & V. Ramadesigan. *Advances in Energy Research*, Vol. 2, Springer Proceedings in Energy.  
[https://doi.org/10.1007/978-981-15-2662-6\\_65](https://doi.org/10.1007/978-981-15-2662-6_65)
- [38] Dhiman B., Chaudhury M.K., **Mahapatra S.**, Chakrabarti D. (2019). Socially Constructed Design in Context of Small-Scale Solar Photovoltaic Home System. In: Chakrabarti A. (eds) **Research into Design for a Connected World**. Smart Innovation, Systems and Technologies, Springer, 134, 391-401. [https://doi.org/10.1007/978-981-13-5974-3\\_34](https://doi.org/10.1007/978-981-13-5974-3_34)
- [39] Singh Manoj Kumar. **Mahapatra Sadhan**. Atreya S. K. *Green Building Design: A step towards sustainable habitat*. Renewable Energy and Sustainable Development. pp 257-268, Editors: R Kataki, A C Borah, EBH Publishers, Guwahati, 2012. ISBN: 978-93-80261-78-2.





- [40] Dutta PP, Jain BC, **Mahapatra S.** Das R. Modification and Performance Testing of a slow speed Diesel Engine for purely producer gas power Operation. In Renewable Energy Technology : Issues and Prospects. Shankar G. Das B. Blange R. (Ed), Excel India Publishers, New Delhi 2011. Page No 112-117, ISBN : 978-93-80697-95-6.
- [41] Singh Manoj Kumar. **Mahapatra Sadhan.** Atreya S. K. Comfort Status in Naturally Ventilated Buildings of North-East India. Renewable Energy Asia - 2008. IIT Delhi, New Delhi, December 11-13, 2008. Proc. Renewable Energy and Environment for Sustainable Development, Ed: V K Vijay, H P Garg, Narosa Publisher, New Delhi, ISBN 978-81-7319-993-6, pp 1110-1116.
- [42] Singh Manoj Kumar. **Mahapatra Sadhan.** Atreya S. K. Bio-climatic Chart for Different Climatic Zones of North East India. Proceedings of 3rd International Conference on Solar Radiation and Day Lighting (SOLARIS 2007), February 7-9, 2007, Anamaya Publishers, New Delhi. ISBN 10:81-88342-54-8, pp 194-199.
- [43] Tiwari Anand Prakash. **Mahapatra Sadhan.** Role of Educational Institutions in the Management of Innovation and Technology. Proc. International Conference on Innovation & Technology Management ( ICITM 2006), February 3-5, 2006, Calcutta. Ed. Book : Innovation and Technology Management, Macmillan Publisher (2008), New Delhi. ISBN 10:0230-63505-9, pp 170-174.
- [44] Singh Manoj Kumar. **Mahapatra Sadhan.** Design Guidelines for Construction of Energy Efficient Buildings in North-East India. International Congress on Renewable Energy (ICORE), February 8-11, 2006, Hyderabad, India. Proceedings of the International Congress on Renewable Energy 2006, Transition to Renewable Energy-Emerging Global Opportunities. Editors: E.V.R. Sastry and D.N. Reddy, Allied Publishers Pvt Ltd. New Delhi. ISBN : 81-7764-756-3. Pp 346-350
- [45] Sarma Anal Chandra. **Mahapatra Sadhan.** Life Cycle Cost Comparison between SPV systems and Electric Grid Extension for Village Electrification. International Conference on Energy and Environmental Technologies for Sustainable Development, 8-10 October 2003, Jaipur, pp 53-58. Proc. Energy Technologies for Sustainable Development. Eds: Dr. Upender Pandel and Dr. M. P. Poonia. 1st ed. Ghaziabad, Prime Publishing House. 2004. ISBN : 81-8229-000-7, pp 53-58



## International Conference Proceeding

- [46] Chandan Kumar Sah, **Sadhan Mahapatra**. Novel Hybrid GWO–IC based MPPT Technique for PV System under Partial Shading Conditions. Proc. SWC 2021: ISES Solar World Congress 25 - 29 October, 2021, Virtual Conference, doi:10.18086/swc.2021.19.02
- [47] Angshu Plavan Nath, Santanu Paul, Zakir Hussain Rather, **Sadhan Mahapatra**. Reliability Estimation of Offshore Wind Farm Considering Wake Effect and Failure Probability of Wind Turbine. IEEE PES Innovative Smart Grid Technologies (ISGT) ASIA 2019, ISBN: 978-1-7281-3520-5/19 pp. 3866-3871, May 21-24, 2019, Chengdu, China.  
**DOI:** 10.1109/ISGT-Asia.2019.8880887
- [48] Manoj Kumar Singh, Ryoza Ooka, Hom B. Rijal, **Sadhan Mahapatra**. Building simulation based study to improve thermal performance of a traditional residential house. Fifth International Conference on Human-Environment System (ICHES2016), Nagoya, October 29 - November 2, 2016.
- [49] Pranab Deb, **Sadhan Mahapatra**, S Dasappa. Biomass Gasifier Based Hybrid Energy System Optimization for Energy Access by Using HOMER. 24th European Biomass Conference and Exhibition, pp 1612-1618, 978-88-89407-165, Amsterdam, Netherlands, 6-9 June, 2016.
- [50] Manoj Kumar Singh, Ryoza Ooka, Hom B Rijal, **Sadhan Mahapatra**. Defining thermal comfort in residential buildings of North East India, Proceedings of 16<sup>th</sup> Conference of the Science Council of Asia, Colombo, Sri Lanka, pp. 118-123, ISBN 978-955-590-123-9; May 30-June 1, 2016
- [51] Baishali Talukdar, **Sadhan Mahapatra**, Nabin Sarmah. A comparative study of grid-connected photovoltaic systems in four different locations of India. Fifth International Conference on Advances in Energy Research (ICAER), IIT Bombay, pp. 245-252, 15-17 December, 2015.
- [52] Sukanya Buragohain, **Sadhan Mahapatra**, Nabin Sarmah, Sanjai Kumar. Shading and Mismatch effect on the Performance of PV Module. Fifth International Conference on Advances in Energy Research (ICAER), IIT Bombay, pp. 505-513, 15-17 December, 2015.
- [53] Neelam Bora, J P Singh, **Sadhan Mahapatra**. Establishment of Smart Micro Grid for Demand Side Management. Fifth International Conference on Advances in Energy Research (ICAER), IIT Bombay, pp. 1651-1659, 15-17 December, 2015.

*Sadhan Mahapatra*

- [54] **Sadhan Mahapatra** et al. Power Rating of Six Different Photovoltaic Technology Modules as Per IEC 61853-1 Under Natural Sunlight. Fifth International Conference on Advances in Energy Research (ICAER), IIT Bombay, pp. 1256-1263, 15-17 December, 2015.
- [55] P. Balachandra, **Sadhan Mahapatra**, D.C. Baruah, H.N. Chanakya, S. Dasappa. Eco-Enterprises, Policies and Institutional Setup for RHEES - North East India. International Bioenergy (Shanghai) Exhibition and Asian Bioenergy Conference 2015 Proceeding, pp 154-160, ISBN 978-88-89407-13-4.
- [56] Singh Manoj Kumar, **Mahapatra Sadhan**, Teller Jacques. Design optimisation of vernacular building in warm and humid climate of North-East India, 30th International Conference on Passive and Low Energy Architecture (PLEA 2014), 16-18 December, 2014, Ahmedabad, India.
- [57] Dhar Priyanka, Borah Pallavi, Singh Manoj Kumar, **Mahapatra Sadhan**. Thermal Characteristics of a Vernacular Building Envelope, 30th International Conference on Passive and Low Energy Architecture (PLEA 2014), 16-18 December, 2014, Ahmedabad, India.
- [58] Baruah Plabita, Singh Manoj Kumar, **Mahapatra Sadhan**. Thermal Comfort in Naturally Ventilated Classrooms, 30th International Conference on Passive and Low Energy Architecture (PLEA 2014), 16-18 December, 2014, Ahmedabad, India.
- [59] Deka K. **Mahapatra Sadhan**, Bordoloi PK, Medhi B. Design and Testing of a Control System for Supply Side Electrical Load Management. Proc of First International Conference on Non-conventional Energy (ICONCE 2014), ISBN: 978-1-4799-3340-2/14, pp. 277-281, January 16-17, 2014, Kalyani, India.
- [60] Das P Palash., **Mahapatra S.** Thermal Energy Performance Analysis of Tea Processing Unit, Fourth International Conference on Advances in Energy Research, ISBN: 978-81-928795-0-5, pp. 1593-1598, IIT Bombay, 10-12 December, 2013
- [61] Singh M. K., **Mahapatra S.**, Teller J. Study on indoor thermal comfort in the residential buildings of Liege, Belgium. CISBAT 2013, pp 481-486, Lausanne, Switzerland, 4-6th September, 2013
- [62] Medhi B J., **Mahapatra S.**, Thokchom A K., Singh A. Dynamics of free surface flow of non-colloidal suspensions in stepped channel. International Conference on Multi-Phase Flow, Jeju, Korea, 26-31st May, 2013



- [63] Singh Manoj Kumar. **Mahapatra Sadhan**. Atreya S. K. Thermal acceptability assessment in vernacular buildings of North-East India. 30th ISES Biennial Solar World Congress, Kassel, Germany, Volume 3, 2011; 2370-2379, ISBN: 978-161839364-7
- [64] Mahapatra Sadhan. **Dasappa S**. Off-Grid Biomass Gasification Based Rural Electrification in Lieu of Grid Extension. Proc of 19th European Biomass Conference and Exhibition, pp 2203-2208, Berlin, Germany, 6-10 June 2011
- [65] Singh Manoj Kumar. **Mahapatra Sadhan**. Atreya S. K. Study to enhance comfort status in naturally ventilated vernacular buildings of northeast India. 29th. ISES Biennial Solar World Congress, Johannesburg, South Africa, Volume 2, 2009, 1442-1450. ISBN:978-161738852-1
- [66] Iftiquar S. M. **Mahapatra S**. Fabricating large area Quantum dot Solar cell. 18th International Photovoltaic Science and Engineering Conference (PVSEC-18), Kolkata, 19-23 January, 2009.
- [67] Singh Manoj Kumar. **Mahapatra Sadhan**. Atreya S. K. Sustainability through Bioclimatic Building Design in North-East India. Third International Solar Energy Society Conference, Asia Pacific Region; 46th ANZSES Annual conference (ISES-AP 2008), Sydney, Australia, 25 - 28 November 2008
- [68] Sarma Anal Chandra. **Mahapatra Sadhan**. Village Electrification using Photovoltaic Systems in lieu of Grid Extension: Economic Analysis. Proc. 14th International Photovoltaic Science and Engineering Conference (PVSEC), Vol. II, pp 967-968, Bangkok, January 26-30, 2004
- [69] Mahanta Ajanta Kumar. **Mahapatra Sadhan**, Konwer D. Performance analysis of Biomass Gasifier systems with the variation of Electrical Load. International Seminar on Decentralized Energy: Options & Management (Challenges before Developing Countries), IE (I), Kolkata, 22-24th February 2002
- [70] Borah Simanta. **Mahapatra Sadhan**. Sasi KK. Energy Conservation measures in Tea Processing Unit. International Seminar on Energy Conservation, Audit & Metering, Central Board of Irrigation & Power, Mumbai, 24-25th January 2002
- [71] Ghosh Sonatan. **Mahapatra Sadhan**. Deka Dhanapati, Techno-Economic Analysis of Biomass Briquetting Technology for Rural Entrepreneurship: A Case Study. Proc. of International Conference on Renewable Energy for Rural Development, Ed. AK M Sadrul Islam, D G Infield, BUET, Dhaka, Bangladesh, pp 255-258,, January 19-22, 2002



- [72] **Mahapatra S.** Energy Conservation and Demand side Management in Lighting Sector - A Case Study. Prakash 99, Int. Conf. on Lighting Technology, New Delhi, Oct 29-31, 1999.

### National Conference Proceedings

- [73] Singh Manoj Kumar. **Mahapatra Sadhan.** Atreya S. K. Climate-responsive Building Design in North-East India. All India Seminar on Emerging Trends in Energy Efficiency - Opportunities & Challenges. 17-18 October 2008, The Institution of Engineers (India), Assam State Centre, Guwahati.
- [74] Bordoloi PK. Deka D. **Mahapatra Sadhan.** Role of Energy in Eco-Tourism Development. Proc. National Seminar on Sustainable Growth of Eco-Tourism in North East India, Tezpur University, September 26-27, 2003, pp 20-23
- [75] **Mahapatra Sadhan.** Konwer D. Energy Characteristics and Saving Potential in a Deluxe Hotel of Tezpur Town. Workshop on Conservation of Hydrocarbon and Use of Alternate Sources of Energy, Oil India Ltd., Duliajan, 28th Jan, 2000
- [76] **Mahapatra S.** Performance Testing of Box type Solar Cooker in North Eastern Region. Proc. National Renewable Energy Convention, Indore, Dec 20-22, 1999, pp 58-59
- [77] **Mahapatra Sadhan.** Konwer D. Prospects & Problems of Renewable Energy Programmes in NE region. Proc. National Renewable Energy Convention, Indore, Dec 20-22, 1999, pp 473-476
- [78] Deka D. **Mahapatra. S.** Konwer D. Rural Energy Scenario in a typical village of Assam: A micro-level case study. Renewable Energy Congress, Univ. of Kalyani, Jan 14 - 16, 1999
- [79] **Mahapatra Sadhan.** Neogi Subhasis. A Study On Multisolution Of simulation Of a Slow Speed wind Turbine, Proc. All India Seminar on Developement of Sustainable Energy systems- An agenda for Utilization of Non-Conventional Energy sources, IE (I), Calcutta, 25-26th April, 1997, pp 65-69.
- [80] **Mahapatra Sadhan.** Neogi Subhasis. Harnath S. A Study of Structural Load Estimation for a Slow Speed Wind Turbine, Proc. Towards Clean Energy, National Solar Energy Convention, Calcutta, 1996 , pp 277-280

### Popular articles

- [1] Singh M K. **Mahapatra S.** The Energy Perspective of Bioclimatic Buildings in North-East India. Energy Manager : A quarterly magazine of Society for Energy Engineers and Managers (SEEM). Jan-March 2009. 2(1); ISSN 0974-0996, pp. 34-41

*Sadhan Mahapatra*

- [2] **Sadhan Mahapatra**. Energy Security and Sustainable Development. The Assam Tribune, 12th September 2006.
- [3] **Sadhan Mahapatra**. The Need for Energy Conservation. The Assam Tribune, 11th May 2006.
- [4] **Mahapatra S.** Sasi K K. Energy Conservation in a Tea Processing Unit, The Bulletin on Energy Efficiency, 4(2), October 2003
- [5] Sasi K K. **Mahapatra Sadhan**. Energy Efficiency in Ceiling Fans, The Bulletin on Energy Efficiency, 4(2), October 2003.
- [6] **Mahapatra Sadhan**. Designing, Initiating and Managing successful Energy Management Programme, The Bulletin on Energy Efficiency, 4(1), August 2003.

### Research Project

- Off-grid Solar Power Plant at Tezpur University, AICTE, 20 lakhs, 2021-2022 (PI)
- Rural Hybrid Energy Enterprise Systems, UKRC-DST, 198 lakhs, 2013-2022, (Co-PI)
- Conversion of biomass to combustible gaseous fuel for power generation through the Gasification Process, Student's Innovation and Research Project Funded by Tezpur University, Rs 0.55 lakhs, Chandan Kumar, Sadhan Mahapatra (Mentor), 2018-19.
- Demonstration of Bamboo based Gasification technology at Tezpur University, National Mission on Bamboo Application, TIFAC, 2004.
- Design Optimisation of a bamboo fan used as forced-air paddy cleaner, GIAN-NE, 2003 (completed) (Co-investigator).
- Energy Consumption Pattern in Tea processing Unit and Scope for Energy Conservation, UGC Minor Research Project. 2002 (Completed)

*Sadhan*

### **International Journal Reviewer**

Applied Energy  
Biomass Conversion and Biorefinery  
Buildings and Environment  
Current Science  
Energy : The International Journal  
Energy and Buildings  
Energy Conversion and Management  
Energy and Environmental Science  
Energy Policy  
Energy for Sustainable Development  
Energy Research and Social Science  
Engineering Reports  
Frontiers of Architectural Research  
Fuel Processing Technology  
Habitat International  
Indoor and Built Environment  
Intelligent Buildings International  
International Journal of Ambient Energy  
International Journal of Green Energy  
International Transactions on Electrical Energy Systems  
International Journal of Electric Power and Energy Systems  
International Journal of Sustainable Built Environment  
Journal of Building Engineering  
Journal of Cleaner Production  
Journal of Energy Storage  
Journal of the Institution of Engineers: Series A  
Journal of Power and Energy  
Journal of Renewable and Sustainable Energy  
Process Integration and Optimization for Sustainability  
RSC Advances  
Scientific Reports  
SolarEnergy  
Sustainable Cities and Society  
PLOS One  
Urban Climate

*Sadhan Mahapatra*

### **Roof top Grid connected Solar Photovoltaic Power Plant at University Campus**

Concept, Planning, Design, Government approval, PPA with developer, performance analysis by using PVsyst Simulation tool, execution support towards installation of the project. The project is under Solar Energy Corporation of India (SECI) Scheme and sanctioned on 14-03-2018 under RESCO mode. University made the Power Purchase Agreement (PPA) with the developer i.e. Arunachal Pradesh Power Corporation Pvt. Ltd, New Delhi for 25 years at a flat tariff of Rs. 2.42/kWh. The system is installed in 15 buildings' roof space. The installation of the project completed in the month of September, 2018. **Tezpur University is the first Academic Institution to have MW Scale Rooftop Grid connected Solar PV power plant in the entire North Eastern Region of the country.** The power plant generated 39.95 lakhs units of electricity during October 2018 – June 2022. **University met 24 % of its electricity requirements from solar power plants during this period.** University also reduced an amount of Rs 166 lakhs in the electricity bill due to the installation of solar power plants in the University and 3068 MT CO<sub>2</sub> emission mitigation.

### **Student Thesis Supervised**

- PhD Student : 03 (ongoing)
- M.Tech Student Thesis : 53 numbers

### **MTech Student Project Supervision**

- 1 Trideep Gogoi (2022). Simulation and Analysis of PV-Micro Hydro Based Hybrid Energy System in Manipur.
- 2 Raju Pathari (2022). PV System Performance Analysis for Different Climatic Conditions.
- 3 Shashi Singh (2022). Study on Ground Source Heat Pump based Cooling and Heating Systems for a Building in Tezpur.
- 4 Debanga Jyoti Borah (2022). Studies on Coal and Biomass Co-gasification.
- 5 Nadarajah Pravin Diliban (2021). Bioclimatic Classification and Potential Estimation for Sri Lanka.
- 6 Chandan Kumar Sah (2021). Performance Enhancement of PV System under Partial Shading Conditions using an Improved MPPT Algorithm
- 7 Tanushree JB Nath (2020). Assessment of Optical Losses in Silicon Solar Cells and Modules by Ray Tracer Simulation. (Co-supervisor: Anil Kottantharayil, IITB)

*Sadhan Mahapatra*



- 8 Ujjiban Kakati (2020). Modeling and Simulation of Small Scale Biomass Gasifier. (Co-supervisor: Priyanka Kaushal, IITD)
- 9 Debarshi Das (2020), Performance and Mismatch Analysis of Grid connected Photovoltaic Power Plant
- 10 Angsu Plavan Nath (2019). A multi-objective Planning Framework for Coordinated Dispatch from Offshore Wind farm and Battery Energy Storage (Co-supervisor: Z H Rather, IITB)
- 11 Chandan Kumar (2019). Effect of Fuel Properties on Reaction front in an Open Top Downdraft Gasifier
- 12 Manash Pratim Baishya (2019) Performance Analysis of 1 MWp Roof Top Grid connected Solar Photovoltaic Power Plant at Tezpur University
- 13 Sunondini Gogoi (2019). Optimization of Hybrid Energy System based Micro-grid by using HOMER
- 14 Banabir Das (2019). Comparative Study Between Biomass Gasification and Biomass-Coal Co-Gasification in an open-top Co-Current Gasifier (Co-supervisor: P P Dutta, Tezpur University)
- 15 Achinta Moni Das (2018). Design Guidelines for Solar Passive Assam Type Building
- 16 Aditya Bora (2018). Tar Generation in Open Top and Close Top Downdraft Gasifier
- 17 Alok Verma (2018). Performance Evaluation and Emission Testing of ISBe 5.9, 230 HP Engine on a Transient Test Cell (Co-supervisor: Sajiv Madambath, Cummins India, Pune)
- 18 Donna Choudhury (2018). Performance Analysis of Grid-connected PV System in Different Climatic Zones of India
- 19 Bhanupriya Das (2017). Development of Broadband Antireflective Coating by Novel Synthesis of Hollow Magnesium Fluoride Nano Particles for Optical and Solar Applications (Co-supervisor: Dr S Sakthivel, ARCI, Hyderabad)
- 20 Bornita Fouzder (2017). Thermal Performance Parametric Study of Orientation, Wall Thickness and Window to Wall Ratio
- 21 Dulal Baruah (2017). Adaptive Thermal Comfort in Office Buildings of Warm and Humid Climatic Zone
- 22 Priyanka Tripathi (2017). Estimation and Characterization of Tar from an Open-top Downdraft Gasifier

*Sadhan*

- 23 Rituraj Dutta (2017). Effect of Density and Air Mass Flux on Flame Propagation in an Open-top Downdraft Gasifier
- 24 Amatya Bharadwaj (2016). Studies on Flame Front Propagation in a Co-current Gasification System under Various Operating Conditions
- 25 Radhe Govinda Debnath (2016). Modeling and Experimental Analysis of PV Array Configurations Under Partial Shaded Conditions
- 26 Pranab Deb (2016). Optimization of Hybrid Energy Systems for Rural Telephone Base Station along with Un-Electrified Village by Using HOMER
- 27 Anil Kumar (2015). Study on Electrical Transport Properties of Amorphous and Micro/Nano-Crystalline Silicon Thin Film for Solar Cells Applications, (Co-supervisor: Dr S Kumar, NPL, New Delhi)
- 28 Anirban Guria (2015). Super-Capacitor Storage of Solar PV Electricity (Co-supervisor: Prof H Saha, IEST, Shibpur)
- 29 Avinash Kumar (2015). Performance analysis and Modelling of Thin Film Technology (Co-supervisor: Dr. O S Sastry, NISE, New Delhi)
- 30 Baishali Talukdar (2015). Design, Performance and Economic analysis of Grid-connected Roof top PV systems (Co-supervisor: Dr. Nabin Sarmah)
- 31 Dhanamoni Rajbongshi (2015). Energy Performance Index of Tea Processing Units of Assam
- 32 Samar Das (2015). Single Particle Combustion Studies of Biomass and Biomass-coal Mixtures
- 33 Sukanya Buragohain (2015). Mismatch, shading and dust depreciation analysis of PV modules (Co-supervisor: Dr. Nabin Sarmah)
- 34 Kabashree Dutta (2014). Performance Analysis of MW-scale Photovoltaic Power Plant of different Technologies under various Climatic Conditions in India
- 35 Mayur Barman (2014). Performance Assessment of Solar Home Systems installed in Assam and its impact on Rural Livelihood
- 36 Pranay Kumar Sarkar (2014). Thermodynamic optimization of biomass gasification and coal-biomass co-gasification process: An extensive parametric study by using non-stoichiometric equilibrium modeling
- 37 Priyanka Dhar (2014). Thermal Performance Analysis of Building Envelope



- 38 Rumi Rajbongshi (2014). Optimization of Hybrid Energy Systems for Rural Electrification by using HOMER
- 39 Bismita Roy (2013). Thermodynamic Optimization of Biomass Gasification Process using non-stoichiometric equilibrium modeling
- 40 Devashree Borgohain (2013). Access to Electricity through Distributed Energy Generation: An Application of HOMER
- 41 Karabi Deka (2013). Supply Side Power System Management through Smart Grid (Co-supervisor: Prof P K Bordoloi, GIMT, Guwahati)
- 42 Neelam Bora (2013). Establishment of Smart Micro grid at Solar Energy Centre (Co-supervisor: J P Singh, Solar Energy Center, New Delhi)
- 43 Pallavi Borah (2013). Thermal Performance Analysis of Buildings
- 44 Palash Paran Das (2013). Thermal Energy Performance Analysis in Tea Processing Unit
- 45 Plabita Baruah (2013). Adaptive Thermal Comfort Model for Naturally Ventilated University Classrooms
- 46 Rishi Raj Borah (2013). Comparative Analysis of Solar PV Lighting Systems in India (Co-supervisor: D Palit, TERI, New Delhi)
- 47 Satinderpal Singh (2013). Technical and Socio-Economic Evaluation of Solar Mobile Charging Stations (Co-supervisor: D Palit, TERI, New Delhi)
- 48 Sidhartha Kayshap Neog (2013). Solar Radiation Assessment and Photovoltaic based Rural Electrification for North-East India (Co-supervisor: Prasun Kumar Das, CWET, Chennai)
- 49 Suprava Chakraborty (2013). Techno-commercial Performance evaluation of different Photovoltaic Technologies in different climatic zones of India (Co-supervisor: P K Das, Solar Energy Center, New Delhi)
- 50 Ashish Kumar (2012). Singh Effect of Light on Electroless Nickel Deposition for Solar Cell application (Co-supervisor: C S Solanki, IIT Bombay)
- 51 Bhaskar Jyoti Medhi (2012). Experimental and computational study on flow over stepped spillways (Co-supervisor: A Singh, IIT Guwahati)
- 52 Deepjyoti Barman (2012). Thermal Energy Audit in Gas based Power Plants (Co-supervisor: Samar J Hazarika, NPC, Guwahati)
- 53 Sanzida Tasmin Ali (2012). Wind Energy Resource Assessment of North Eastern Region of India

**Invited Talk in Seminar/Conference/Workshop etc.**

- “Sustainable Campus Initiatives in Higher Learning Institutes”, Faculty Induction Programme (FIP), Teaching Learning Center, Tezpur University, 1<sup>st</sup> September, 2021.
- “Appropriate Technology for Sustainable Living”, State Level Resource Person Training Workshop for National Children's Science Congress, Assam, 4-5<sup>th</sup> , 8-9<sup>th</sup> , 12-13<sup>th</sup>, 15-16<sup>th</sup> July 2021.
- “Solar Passive Architectures and Thermal Comfort”, International Conference on Innovative Research in Renewable Energy Technologies (IRRET 2021), IMPS College of Engineering and Technology, Malda, West Bengal, 26<sup>th</sup> February, 2021
- “Single particle combustion studies of coal/biomass fuel mixtures”, International Conference on Emerging Renewable and Modern Energy (ICERME - 2021), Assam Don Bosco University, Guwahati, 12<sup>th</sup> February, 2021.
- “Appropriate Technology for Sustainable Living”, State Level Resource Person Training Workshop for National Children's Science Congress, Assam, 17-18<sup>th</sup> November, 2020.
- “Recent Developments and Performance Analysis of Grid Connected Rooftop Solar PV Plant”, ATAL-AICTE Faculty Development Program (FDP) on “Energy Engineering, Applications and Control” Organized by Department of Electrical Engineering, NERIST, 22<sup>nd</sup> September, 2020.
- ‘Solar Home Lighting System and its impact in Rural Livelihood of Assam at Online training program on Renewable Energy (Emphasis on Solar Off Grid PV system), Organized by NPTI-NER, Guwahati, 03<sup>rd</sup> July 2020.
- ‘Climate Responsive Buildings and Thermal Comfort models for NE India’, One-Week Online Short Term Training Programme (STTP) on ‘Green Building, Energy Efficiency and Energy Policy for Sustainable Future’, Organized by Assam Science and Technology University (ASTU), Guwahati, June 11, 2020.
- ‘Biomass Gasification: Science and Technology’ at International conference on Engineering Sciences and Technologies for Environmental Care (ESTEC 2020), at CSIR NEIST, Jorhat, 22<sup>nd</sup> February, 2020
- ‘Biomass Gasification: Science and Technology’ at International Conference on Advances in Energy Technology at Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar, Odisha, 17<sup>th</sup> January, 2020.

- “Wind Energy and its prospects for sustainable development” at Faculty Development Programme on “Prospects of Mechanical Engineering in Renewable Energy Sector” at GIMT Tezpur, 22<sup>nd</sup> November, 2019.
- “Sustainable Cities and Rooftop Solar”, at Workshop on Smart and Sustainable Cities, Tata Institute of Social Science, Guwahati, 11<sup>th</sup> October, 2019.
- “Classroom Management and Outcome base Education”, at Refresher Course on Teacher Education (Interdisciplinary), Organized by Department of Education, Tezpur University, 19<sup>th</sup> September, 2019.
- “Solar PV Technology and Smart Grid”, at National Seminar on Recent Challenges in Smart Grid, Organized by Kaziranga University, 27<sup>th</sup> August, 2019.
- “Renewable Energy and Sustainable Development”, at Induction Training of Faculty, Organized by Teaching Learning Center, Tezpur University, 19<sup>th</sup> June, 2019.
- “Recent Development on Grid Connected Solar Power Plant”, at National Conference on Emerging Trends in Energy and Electrical Systems 2019 ( ETEES – 19), Organized by Assam Engineering College, 29<sup>th</sup> March, 2019.
- “Recent Development and Performance Analysis on Grid Connected PV Systems”, at International Conference on Advanced Materials for Energy Science and Technology (AMEST 2019, Organized by Department of Energy Engineering, North Eastern Hill University, Shillong, 26<sup>th</sup> February, 2019.
- “Classroom Management”, at Week-long Workshop on Research Methodology and Technical Writing, Organized by Department of Environmental Science, Tezpur University 2<sup>nd</sup> February, 2019.
- “Review of Solar PV Technology for large plants and Rooftop and Recent Developments”, at Two days National Seminar on Solar Photovoltaic Power Plant and Reactive Power Management, Organized by National Power Training Institute, Guwahati at Radison Blu Hotel, 4<sup>th</sup> December, 2018.
- “Effective Class Management and Outcome base Education”, at Faculty Development Program on Improvement of Classroom Teaching, GIMT Tezpur, 20<sup>th</sup> June, 2018.
- “Solar Energy Technologies”, at Entrepreneurship Development Program on Solar PV Rooftop, Organized by National Power Training Institute at Tezpur University, on 12<sup>th</sup> March, 2018.

*Sadhan Mahapatra*

- “Biomass Gasification Technologies”, at Faculty Development Program on Advances in Renewable Energy Technologies and Systems at Tezpur University, on 20<sup>th</sup> February, 2018.
- “Decentralized Energy Systems and HOMER Simulation Tool”, at Faculty Development Program on Advances in Renewable Energy Technologies and Systems at Tezpur University, on 21<sup>st</sup> February, 2018.
- “Biomass Gasification in an open top downdraft Gasifier”, at Natioanl Exhibition and Conference on New and Renwable Energy (NECONRE-2017), Department of Electrical and Electronics Engineering, Assam Don Bosco University, Guwahati, 07<sup>th</sup> October, 2017.
- “Climate responsive Buildings in North East India”, at National Conference on Renewable Energy Technology Utilization for Rural Development and Trade Show (NCRETURD 2017), Department of Energy Engineering, North Eastern Hill University, Shillong, 28<sup>th</sup> February, 2017.
- “Grid-connected Roof-top Solar Photovoltaic System”, at Symposium 16, on Aspects of Renewable Energy in the North Eastern Region of India, Department of Electrical Engineering, GIMT, Guwahati, 8<sup>th</sup> April, 2016.
- “Solar passive features of vernacular buildings and Thermal comfort”, NEQIP Short term course on “Adavnces in Renewable Energy and its Applications”, Department of Electrical Engineering, Assam Engineering College, Guwahati, 8<sup>th</sup> March, 2016.
- “Performance analysis of grid connected photovoltaic systems”, NEQIP Short term course on “Adavnces in Renewable Energy and its Applications”, Department of Electrical Engineering, Assam Engineering College, Guwahati, 8<sup>th</sup> March, 2016.
- “Solar Passive Architecture”, TEQIP Short term course on “Solar Energy Conversion and Managaement”, Centre for Energy, IIT Guwahati, 26<sup>th</sup> November, 2015.
- “Design, Performance and Economic Analysis of Roof-top Grid-connected Solar Photovoltaic System” at Industry-AcademiaMeet on 4<sup>th</sup> November, 2015, Department of Energy, Tezpur University, Tezpur.
- “Approach towards energy efficient bioclimatic design for housing in the NER” at HUDCO-HSMI Training Programme on ‘Planning Issues and Interventions for Hill Towns of NER’ on 15<sup>th</sup> September, 2015, Hotel Lily, Guwahati.
- “Climate responsive buildings and thermal comfort” at One day awareness programme on Renewable Energy on 20<sup>th</sup> August 2015, Department of Energy Engineering, NEHU, Shillong.

*Sadhan Mahapatra*

- “Design and performance analysis of roof top grid connected PV system” at One day awareness programme on Renewable Energy on 20<sup>th</sup> August 2015, Department of Energy Engineering, NEHU, Shillong.
- “Climate responsive buildings and Thermal comfort”, NEQIP-AICTE sponsored FDP, Prince of Wales Institute of Engineering and Technology, Jorhat, Assam, 26<sup>th</sup> March, 2015.
- Pannel discussion on ‘Learnings from the Field: Contributing to Policy Discourse’ at Workshop on Sustainable Energy for All: Exploring how Bottom-up Experiences can influence the Policy Discourse, 31st July 2014; Organsied by TERI, The Pride Kolkata, Kolkata
- “Biomass gasification: Science, Technology and Application”, STTP, MANIT, Bhopal, 27<sup>th</sup> December, 2013.
- “Climate responsive buildings of North East India”, International Congress on Renewable Energy, Tezpur University, 2-4th November, 2011.
- “Solar Home Lighting Systems Design”, Central Training Institute, Guindy Industrial Area, Chennai, 9th August, 2011
- “Bio Climatic Envelop Design and ECBC”, National Workshop on Energy Efficiency Codes, and Ratings in Buildings. Guwahati, SDA, Assam and SEEM, 29th April 2010.
- “Solar Energy : Principles, Utilizations and Economics”, Workshop on Solar Energy, Department of Electrical & Electronics Engineering, Sri Siddhartha Institute of Technology, Tumkur, Karnataka, 2nd December, 2006.
- Life Cycle Cost comparison between Solar Photovoltaic Systems and Electric grid extension for Village electrification. Training Programme on Distributed Generation Technologies for Village Electrification, TERI-NE, Guwahati, 18th January 2006
- Wind Energy Technology: Options for decentralized power in North East India. Training Programme on Distributed Generation Technologies for Village Electrification, TERI-NE, Guwahati, 18th January 2006.
- Solar Passive Housing in North East India. Training Programme on Eco-housing and Sustainable Habitats, TERI-NE, Guwahati, 22nd December 2005.
- Discussion on Roles of Joint Forest Management Committee in Production of Electricity from Biomass. All India Radio, Guwahati, 12th December 2005.

*Sadhan Mahapatra*



- Scope of Energy Conservation in Nezone Biscuits Factory. Workshop on Energy Conservation & Tools for Reducing Energy wastage in Industry, Guwahati, 18th November 2005
- National Energy Conservation Programme. Workshop on Energy Conservation & Tools for Reducing Energy wastage in Industry, Guwahati, 18th November 2005
- Solar Energy & its Uses. Training-cum-Workshop on Integrated Rural Energy Planning, Nagaland Renewable Energy Development Agency, Kohima, 25th February 2005
- Energy. Motivational Contact Programme for Talented School children of class IX to XII, Tezpur University, 31st January, 2005
- Economics of Renewable Energy System. Training-cum-Workshop on Integrated Rural Energy Planning, Department of Energy, Tezpur University, 28th -30th January 2005.
- Solar Photovoltaic. Training-cum-Workshop on Integrated Rural Energy Planning, Department of Energy, Tezpur University, 28th -30th January 2005.
- Economics of Solar Thermal Energy Applications. Workshop on Solar thermal Application, Arunachal Pradesh Energy Development Agency ( APEDA), Itanagar, 20-21st December 2002
- Basic principles of solar energy resources and its utilization. Regional workshop on solar and low energy architecture, TERI-NE, Guwahati, 13-15th March 2002
- Renewable Sources of Energy. Contact Programme for Talented School children of class IX to XII, Tezpur University, 7th February, 2001
- Demand side Energy management in Lighting Sector. AICTE/ISTE short term training programme on Energy Management, NERIST, Itanagar, 18-19th Dec. 2000.
- Renewable Energy Technology (Other than Solar & Bio-energy). Workshop on Renewable Energy in North-East India with special Reference to Bio-Energy Technology, Guwahati, 4th-5th Sept. 1999

### **Seminar/Workshop/Training Programme attended**

- Brainstorming Workshop on Preparation of Activity Guide 2020-2021 for National Children Science Congress, Kerala Forest Research Institute (KFRI), Thrissur, 08-10 August 2019.
- Diamond Jubilee Workshop on “Future of Energy Research and Education”, 13-14<sup>th</sup> December, 2018, at IIT Bombay.
- Evaluator at 26<sup>th</sup> National Children’s Science Congress 2018, Majuli College, Assam, October 23-26, 2018.

*Sadhan Mahapatra*



- Evaluator at 25<sup>th</sup> National Children's Science Congress 2017, Gujarat Council of Science and Technology, Ahmedabad, December 27-31, 2017.
- 6<sup>th</sup> International Conference on Advances in Energy Research 12-14<sup>th</sup> December, 2017.
- Evaluator at 25<sup>th</sup> National Children's Science Congress 2017, Kokrajhar, Assam, October 25-28, 2017.
- QIP short term course on "Photovoltaics and Application to Smart Grid", 18<sup>th</sup>-22<sup>nd</sup> January, 2016, at Centre for Continuing Education, Indian Institute of Science.
- 5<sup>th</sup> International Conference on Advances in Energy Research 15-17<sup>th</sup> December, 2015.
- Roundtable brainstorming session "Advancing Energy Efficiency Research for Habitat in India", 15<sup>th</sup> December, 2014, Sponsored by DST, and Indo-US Science and Technology Forum, at CEPT University, Ahmedabad, India.
- Evaluator at 22<sup>nd</sup> National Children's Science Congress 2014, Guwahati, October 16-19, 2014
- Evaluator at 21<sup>st</sup> National Children's Science Congress 2013, MP Council of Science and Technology (MPCST), Bhopal, December 27-31, 2013
- Evaluator at 21<sup>st</sup> National Children's Science Congress 2013, Dhemaji College, Assam, October 23-26, 2013
- Seminar-cum-Workshop on Pedagogy organized by IIT Kharagpur at AEC, Guwahati on 04-04-2013.
- Evaluator at 20<sup>th</sup> National Children's Science Congress 2012, Biswanath Chariali, Assam, October 15-18, 2012
- National Orientation Workshop on Finalization of Activity Guide 2012-2013 for 19<sup>th</sup> National Children Science Congress, Regional Institute of Education, Mysore, 11-13<sup>th</sup> June 2012
- Brainstorming Workshop on Preparation of Activity Guide 2012-2013 for 19<sup>th</sup> National Children Science Congress, Tezpur University, 2-4<sup>th</sup> May 2012
- Two-week ISTE Workshop on Solar Photovoltaics: Fundamentals, Technologies and Applications, conducted by IITB at Tezpur University, 12-22<sup>nd</sup> December 2011
- International Congress on Renewable Energy (ICORE) 2011, Tezpur University, 2-4<sup>th</sup> November, 2011
- 19<sup>th</sup> European Biomass Conference and Exhibition, Berlin, Germany, 6-10<sup>th</sup> June 2011.
- Science Academies' Lecture Workshop on Graduate Engineering Curriculum Development for Biomass Related Subjects, 10-11 March 2011, IISc and Jain University.

*Sadhan Mahapatra*

- IISc Centenary Conference, 13-16th December 2008. Indian Institute of Science, Bangalore.
- International Symposium on Earthen Structures (ISES-2007), 22-24th August 2007, Organised by ENTPE, France, IISc and University of Bath, UK at IISc, Bangalore.
- Training Programme on Effective Energy Generation and Conversion Systems, November 20-22, 2006, Organized by The Association for Overseas Technical Scholarship, Japan at IISc, Bangalore.
- International Congress on Renewable Energy (ICORE), February 8-11th, 2006, Hyderabad, India
- International Conference on Innovation & Technology Management (ICITM 2006), 3-5th February, 2006, Kolkata, India
- Training Programme on Distributed Generation Technologies for Village Electrification, TERI-NE, Guwahati, 18th January 2006
- Training Programme on Eco-housing and Sustainable Habitats, TERI-NE, Guwahati, 22nd December 2005.
- UGC Sponsored Refresher Course in Recent Advances in Physics, at Department of Physics, Tezpur University, December 9- 30, 2005.
- Workshop on Energy Conservation & Tools for Reducing Energy wastage in Industry, Guwahati, 18th November 2005
- Training-cum-Workshop on Integrated Rural Energy Planning, Nagaland Renewable Energy Development Agency, Kohima, 25th February 2005
- VIIth World Bamboo Congress, 27th Feb-4th March 2004, New Delhi.
- International Conference on Energy and Environmental Technologies for Sustainable Development, 8-10th October 2003, Jaipur
- National Seminar on Sustainable Growth of Eco-Tourism in North East India, Tezpur University, September 26-27, 2003.
- Workshop on Solar thermal Application, Arunachal Pradesh Energy Development Agency (APEDA), Itanagar, 20-21st December 2002
- DST sponsored One day Patent Awareness workshop, Tezpur University, 9th September 2002
- UGC Sponsored Refresher Course on Renewable Energy Technologies, School of Energy Studies, Jadavpur University, Kolkata during April 17th to May 8th 2002.

*Sadhan Mahapatra*

- Three day Regional Workshop on Solar and Low Energy Architecture, TERI-NE, Guwahati, 13-15th March 2002.
- Three day training programme for officers from North Eastern States & Orissa on Project Planning & Evaluation (Sponsored by Planning Commission) at Indian Institute of Management, Calcutta (IIMC) during March 12-14, 2001
- One Week National Workshop on Energy Studies for College & University Teachers at School of Energy Studies, Jadavpur University, Kolkata-32 during Jan 8-12, 2001
- AICTE/ISTE short term training programme on Energy Management, NERIST, Itanagar, 18-19th December 2000
- Workshop on Conservation of Hydrocarbon and Use of Alternate Sources of Energy, Oil India Ltd., Duliajan, Assam, 28th Jan, 2000.
- National Renewable Energy Convention, Indore, Dec 20-22, 1999.
- Prakash 99: International Conference on Lighting Technology, New Delhi, Oct 29-31, 1999.
- Workshop on Renewable Energy in North-East India with special Reference to Bio-Energy Technology, Guwahati, 4th-5th September 1999
- Renewable Energy Congress, University of Kalyani, Jan 14 - 16, 1999
- All India Seminar on Development of Sustainable Energy systems - An agenda for Utilization of Non-Conventional Energy sources, I.E (I), Calcutta, 25th-26th April, 1997.
- National Solar Energy Convention, Calcutta, 1996.

### **Seminar/Workshop/Training Programme Organised**

- Review Workshop to finalize the Activity Guide Book for 2020-21 of National Children Science Congresses, Sponsored by DST/ASTEC, Organized by Tezpur University during December 6-10, 2019 (Coordinator)
- Assam Science Festival, Sponsored by ASTEC, Organized by Tezpur University during December 23-25 March, 2019 (Joint Convener)
- Entrepreneurship Development Programme on Solar PV Rooftop, 12-16 March, 2018, Sponsored by National Institute of Solar Energy under US India Bilateral Partnership to Advance Clean Energy Deployment (PACE-D) TA Program, Organized by Department of Energy in association with National Power Training Institute, Guwahati. (Coordinator)

*Sadhan Mahapatra*

- Faculty Development Programme on Advances in Renewable Energy Technologies and Systems, 19-24 February, 2018, Sponsored by AICTE-NEQIP, New Delhi, Organized by Department of Energy in collaboration with Teaching Learning Centre, Tezpur University. (Co-coordinator)
- Suryamitra Skill Development Program, 2nd May - 30th July, 2016, Sponsored by Ministry of New and Renewable Energy, Government of India, New Delhi, Organized by Tezpur University, (Co-coordinator)
- Workshop-cum-Exhibition on Promoting Technology Development, Utilization and Transfer, 20th - 21st January 2006, Sponsored by Department of Scientific and Industrial Research (DSIR), Govt. of India, New Delhi (Convenor).
- Seminar on Gender and Energy Use, 11th November 2005, Sponsored by United States Educational Foundation in India, Kolkata (Co-coordinator)
- Training-cum-Workshop on Integrated Rural Energy Planning, 28th- 30th January 2005, Sponsored by Ministry of Non-conventional Energy Sources, Govt. of India, New Delhi (Joint Coordinator).
- Training-cum-Demonstration programme on Bamboo based Biomass Gasifier, 20th November 2004, Sponsored by National Mission on Bamboo Applications, New Delhi (Coordinator)

### **Scholarships/Fellowships etc.**

- National Merit Scholarship from XIth to M.Sc. (MHRD, Govt of India)
- Ranked 2nd in the B.Sc. (Physics) (1992), Visva-Bharati, Shantiniketan, India.
- Visva-Bharati University Merit Scholarship during M.Sc. Programme
- Graduate Aptitude Test in Engineering, India, 1994 (GATE-94)
- MHRD, Govt. of India Scholarship during M.Tech Programme
- CSIR JRF NET, June 1996, India
- Gold Medal in M. Tech. (Energy Sc. & Tech.) (1997), Jadavpur University, Kolkata, India
- IISC- Institute Scholarship for PhD; Sept 2010-July 2011.

### **Member**

- Member, Board of Studies, Department of Energy Engineering, North Eastern Hill University, Shillong, 2019-
- Member, Governing Council (2017-18, 2018-19), Solar Energy Society of India, New Delhi.

*Sadhan Mahapatra*

- Member, International Scientific Committee, International Conference on Environmental Science and Energy Engineering (ICESEE 2015), 26-27 July, 2015, Phuket, Thailand
- Member, National Technical Committee, National Conference on Advances in Fluid Flow and Thermal Science, 20-22 March, 2015, NERIST, Itanagar, India
- Chair, Technical Session on Integration of Renewable Energy, on December 18, 2014, at 30th International Conference on Passive and Low Energy Architecture (PLEA 2014), 16-18 December, 2014, Ahmedabad, India
- Member, Technical Committee, 30th International Conference on Passive and Low Energy Architecture (PLEA 2014), 16-18 December, 2014, Ahmedabad, India
- Member, Technical Committee, 1st International Conference on Non-conventional Energy, 16-17 January, 2014, Kalyani, India
- Chartered Engineer (C. Eng) (2003), Institution of Engineers (India)

### **Membership of Professional /Learned Bodies/ Societies**

- Member, International Solar Energy Society (ISES) (1310217)
- Fellow, Institution of Engineers (FIE)(F1229830)
- Indian Science Congress Association (L10307)
- Solar Energy Society of India (SESI) ( 0816/LM/98)
- Indian Society for Technical Education (ISTE) (LM 27441)
- Indian Association for the Cultivation of Science
- Indian Society for Lighting Engineers (ISLE)

### **Extension Activities**

- Third Party Inspection on Solar Home Lighting Systems of Lakhimpur and Dhemaji districts of Assam (2010)
- Coordinator: GIAN-NE, Tezpur University Chapter (2002-2006)
- Feasibility study on installation of Wind Turbine at Regional Potato Farm, Mao, Department of Horticulture and soil conservation, Government of Manipur (2004)
- Programme Coordinator: Tezpur University NSS ( National Service Scheme)Unit

### **Professional Responsibility at Tezpur University**

- Member, Board of Management, Tezpur University (2013-16)
- Programme Coordinator, PG Diploma in Renewable Energy and Energy Management, Distance Education Programme (2012-)

*Sadhan Mahapatra*

- Programme Coordinator, Tezpur University NSS (National Service Scheme) Unit, 2005-2006
- Member, Internal Quality Assurance Cell (IQAC) ( 2013-16)
- Member, Planning and Academic Committee, Tezpur University (2002-2004)
- Coordinator, Tezpur University Chapter of Grassroots Innovation Augmentation Network (GIAN) sponsored by NIF(2002-2006)
- Member, Tezpur University Student Council Election (2014, 2015, 2016, 2017, 2018)
- University Representative, Tezpur University Entrance Examination – Kokrajhar (2003), Shillong (2004, 2005)
- Centre Superintendent, Tezpur University Entrance Examination, Tezpur Centre (2012, 2013, 2014, 2015, 2018, 2019)
- Warden, Men's Hostel I (1998-1999); Brahmaputra Chatra Niwas ( 2000-2006); New Hostel (Men) II; 2002
- Member: Academic Programme Committee (2002-2005), Students Welfare Committee, Students Disciplinary Committee, Students Council, Canteen Management committee, Physical Stock Verification, Convocations, Foundation Day Celebrations, Independence & Republic Days Celebration, Annual Sports & Cultural Meets, NAAC 2005, 2016 Visit, House Allotment Committee, Security Committee, Tender and Purchase Committee
- Secretary, Canteen Management Committee
- Vice President , Tezpur University Alumni Association

## Communication Address

Department of Energy

Tezpur University, Tezpur 784028, Assam, India

Phone : +91-3712-275306 (O) , 94350 82881 (M)

Email IDs : sadhan[AT]tezu.ernet.in; sadhan.mahapatra[AT]gmail.com

## Permanent Address

Sarenga, Bankura 722150, West Bengal

*Sadhan*