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Academic Degrees

Degree	Year	Discipline	Institute	Remarks
Doctor of Philosophy (PhD)	2019	Engineering	Jadavpur University, Kolkata, India	Thesis Title: **Distributed Hybrid Renewable Polygeneration for Indian Villages: Optimization Studies**
Master of Technology (M. Tech)	2011	Energy Sciences	Jadavpur University, Kolkata, India	First Class
Bachelor of Engineering	2009	Applied Electronics and Instrumentation Engineering	University Institute of Technology, Burdwan University	First Class
Higher Secondary	2005	Pure Science	R.K.MissionVidyalaya, Narendrapur	First Class
Secondary	2003	General	R.K.MissionVidyalaya, Narendrapur	First Class

Participation in Projects during M. Tech

"Characterization of Semiconductor Devices" under the guidance of Prof Paul Sellin at the Department of Physics **University Of Surrey, London, UK** as a part of UKIERI program.

Work Experience

Name Of Institution	Designation	Department	From	To
Indian Institute of Technology, Bombay	**Postdoctoral Fellow**	**Energy Science and Engineering**	**11/10/2020**	**Till date**
Institute of Engineering and Management, Kolkata	Assistant Professor	Electrical &Electronics Engineering	02/04/2018	30/09/2020
Indian Institute of Social Welfare and Business Management and Jadavpur University	Research fellow and Teaching Assistant	Energy Studies and Mechanical Engineering	01/01/2014	31/03/2018
Regent Education and Research Foundation	Assistant Professor	Electrical &Electronics Engineering	17/02/2013	31/12/2013
Calcutta Institute Of Engineering &Management	Assistant Professor	Instrumentation & Control Engineering	15/07/2011	16/02/2013

Area of research

Modeling of energy systems, Distributed generation, Techno-economic optimization of energy systems, Rural Energy Planning, Process Integration for efficient resource utilization through Pinch Analysis, Application of metaheuristic algorithms for techno-economic analysis of rural energy systems, Financial Pinch Analysis for selection of energy conservation projects for industries.

Administrative Experience

- Served as the Assistant Organizing Secretary for the Observance of Energy Conservation Day at IISWBM.
- Served as class coordinator in Short Term Course on energy Management and audit at IISWBM.
- Participated in Waste Heat Recovery Policy Framing of Government of West Bengal at IISWBM.

Professional Membership

- Institution of Engineers (Membership No: AM150268-1)
- Indian Society for Heating, Refrigeration and Air Conditioning Engineers (Membership No: 56800)
- Solar Energy Society of India (Membership No: LM/2332/2019)

Publications

A) Book chapters:

1. **Ray A**, De S. Hybrid Renewable Multigeneration: Low Carbon Sustainable Solution With Optimum Resource Utilization. Reference Module in Materials Science and Materials Engineering (Elseivier) 2018. doi.10.1016/B978-0-12-803581-8.11036-7
2. **Ray A**, De S, Distributed Polygeneration Using Solar Energy: A Future Sustainable Energy System for India; Applications of Solar Energy (Springer) 2018.doi 10.1007/978-981-10-7206-2_2
3. **Ray A**, De S, Renewable Electricity Generation: Effect on GHG emission; **(Elseivier)** 2020. Reference Module in Materials Science and Materials Engineering. Encyclopaedia of Renewable and Sustainable Materials.
4. Choudhury B.K, **Ray A**, Lahiri D, Development of vapour absorption cooling systems driven by renewable energy. (Elseivier) 2020. Reference Module in Materials Science and Materials Engineering. Encyclopaedia of Renewable and Sustainable Materials.

B) Articles in International journals:

1. **Ray A**, Jana K, De S. Polygeneration for an off-grid Indian village: Optimization by economic and reliability analysis. **Applied Thermal Engineering (Elseivier)** 2017, 116, 182-196.
2. Jana K, **Ray A**, Majoumerd MM, Assadi M, De S. Polygeneration as a future sustainable energy solution- A comprehensive review. **Applied Energy (Elseivier)** 2017, 202, 88-111.
3. **Ray A**, De S. Polygeneration using renewable resources: Cost optimization using linear programming. **Process Integration and Optimization for Sustainability (Springer)** 2018. doi. 10.1007/s41660-018-0053-2.
4. **Ray A**, Jana K, Assadi M, De S, Distributed polygeneration using local resources for an Indian village: multi-objective optimization using metaheuristic algorithm. **Clean Technologies and Environmental Policy (Springer)** 2018. doi. 10.1007/s41660-018-0053-2.
5. **Ray A**, De S. Techno-economic optimization of a small scale distributed polygeneration with local resources for a remote place of India. **International Journal of Ambient Energy (Taylor and Francis),** doi. 10.1080/01430750.2019.1583129.
6. Das S**, Ray A**, De S. Optimum combination of renewable resources to meet local power demand in distributed generation: A case study for a remote place in India. **Energy (Elsevier),** https://doi.org/10.1016/j.energy.2020.118473.

C) Published contributions to Conferences:

1. **Avishek Ray**, B.K. Choudhury, "Energy Management Through Vapour Absorption Cooling Systems In India", Internetional Congress On Renewable Energy held at Pandit Deendayal Petroleum University, Gandhinagar, Gujrat on 6-7th Dec 2012.
2. **Avishek Ray**, B.K. Choudhury, "A comparison between the vapor absorption and vapor compression cooling systems- A thermodynamic approach at International Congress On Renewable Energy held at Maneckshaw Centre, New Delhi, organized by Solar energy Society of India.
3. **Avishek Ray**, Kuntal Jana, Sudipta De,Mohsen Assadi, "OPTIMUM DESIGN OF PV-WIND-BIOMASS-FUEL CELL BASED POLYGENERATION SYSTEMBY USING META HEURISTIC ALGORITHM", Proceedings of the International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017), 26 – 28 February, 2017, Mohali, India.
4. Kuntal Jana, **Avishek Ray**,Sudipta De,Mohsen Assadi,SubhaMandal, "EXERGY ANALYSIS OF BIOMASS BASED POLYGENERATION", Proceedings of the

International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017), 26 – 28 February, 2017, Mohali, India.

5. **Avishek Ray**, Mohsen Assadi, Sudipta De, "Cost Optimization of a Polygeneration using Renewable Resources", 6th International Conference on. Advances in Energy Research 2017(ICAER 2017), December 12–14, 2017, Mumbai, India. (Accepted for publication)
6. **Avishek Ray**, Sudipta De, "Optimum design of a renewable based polygeneration using Flower Pollination Algorithm", International Conference in Mechanical Engineering (INCOM 18), 4-6 January 2018, Kolkata, India. (Accepted for publication)