



## MANAV RACHNA UNIVERSITY, FARIDABAD

Sector 43, Aravalli Hills, Manav Rachna Campus Rd, Faridabad, Haryana 121004

### Prof (Dr.) Sujata Nayak



**Designation:** HOD-ME & Professor

**Qualifications :** Ph.D.(Solar Energy Engineering)

**Email :** sujata@mru.edu.in

**Experience:** 12 Years

[Google Scholar Profile](#)

**Research Interest :** Solar Energy Engg., Fluid Mechanics and Heat Transfer

#### + Journal Publication Details:

##### **A. International Journals**

- 1) **Sujata Nayak and Arvind Tiwari.** Performance evaluation of a hybrid photovoltaic/thermal integrated greenhouse system. **International Journal of Agricultural Research 2(3): 211-226, 2007**
- 2) **Sujata Nayak, M.K. Ghosal and G.N.Tiwari.** Experimental investigation for winter performance of a greenhouse coupled with solar photovoltaic and earth air heat exchanger. **International Journal of Agricultural Engineering. Manuscript EE 07 015. Vol. IX. November 2007.**
- 3) **Sujata Nayak, M.K. Ghosal and G.N.Tiwari.** Modeling and Experimental study for winter performance of an earth to air heat exchanger: An alternative energy source for greenhouse. **International Journal of Agricultural Engineering. Manuscript EE 07 012. Vol. X. January 2008.**
- 4) **Sujata Nayak and G.N.Tiwari.** Energy and exergy analysis photovoltaic/thermal integrated with a solar greenhouse. **Energy and Buildings, 40(2008): 2015-2021.**
- 5) **Sujata Nayak and G.N.Tiwari.** Theoretical performance assessment of an integrated photovoltaic and earth air heat exchanger greenhouse using energy and exergy analysis methods. **Energy and Buildings, 41(2009): 888-896.**
- 6) **Swapnil Dubey, Sujata Nayak, G.N.Tiwari and S.C. Solanki.** Performance analysis of a conventional PV/T mixed mode dryer under no load condition. **International Journal of Energy Research, 33(2009): 919-930.**
- 7) **Sujata Nayak and G.N.Tiwari.** Energy metrics of photovoltaic thermal and Earth air heat exchanger integrated greenhouse for different climatic conditions of India. **Applied energy, 87(2010): 2984-2993.**
- 8) **Sujata Nayak, Ajit Kumar, Jaya Mishra and G.N.Tiwari.** Drying and Testing of Mint (*Mentha Piperita*) by a Hybrid Photovoltaic-Thermal (PVT) based Greenhouse Dryer. **Drying Technology: 29, 1002-1009, 2011.**

- 9) **Deepali Kamthania, Sujata Nayak and G.N.Tiwari.** Performance Evaluation of a hybrid Photovoltaic Thermal Double Pass Facade for Space Heating. **Energy and Buildings: 43 (9), 2274-2281, 2011.**
- 10) **Deepali Kamthania, Sujata Nayak and G.N.Tiwari.** Exergy analysis of a hybrid Photovoltaic Thermal Double Pass Facade for Space Heating. **Applied Solar Energy: vol. (47), no. 3.**
- 11) **Sujata Nayak, Ajit Kumar and G.N.Tiwari.** Energy metrics analysis of hybrid PVT greenhouse dryer by considering various silicon and non silicon PV modules. **International Journal of Sustainable Energy.**
- 12) **Sujata Nayak, Zeba Naaz, Pushpendra Yadav, Ruchi Chaudhary.** Economic Analysis of Hybrid Photovoltaic-Thermal (PVT) Integrated Solar Dryer. **International Journal of Engineering Inventions. Vol. 1, Issue 11 PP: 21-27, 2012.**
- 13) **Sujata Nayak, Ruchi Chaudhary, Kapil Narwal,.** Mathematical Modeling and Experimental Study for Summer Performance of Earth Air Heat Exchanger Integrated with a Solar Greenhouse. **IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT) e-ISSN: 2319-2402, p- ISSN: 2319-2399. Volume 10, Issue 7 Ver. II (July 2016).**

+ **Conference Publications:**

**B. International Conference**

- 1) **Sujata Nayak** and M.K. Ghosal. Modeling for heating of a solar greenhouse integrated with hybrid photovoltaic thermal system and earth air heat exchanger. **3<sup>rd</sup> International Conference on Solar Radiation and Day Lighting, SOLARIS 2007, at IIT Delhi.**
- 2) M.K. Ghosal and **Sujata Nayak.** Modeling and experimental study for summer performance of earth air heat exchanger coupled with a solar greenhouse. **3<sup>rd</sup> International Conference on Solar Radiation and Day Lighting, SOLARIS 2007, at IIT Delhi.**
- 3) **Sujata Nayak, A.K. Singh and G.N.Tiwari.** "Development and Testing of Hybrid Photovoltaic-Thermal (PVT) Integrated Solar Dryer: Techno-economic Analysis." **International Conference on Global Warming and Sustainable Climate, SOLARIS 2012, at IIT BHU.**
- 4) **Sujata Nayak** and Ajit Kumar. "Performance Evaluation of Hybrid Photovoltaic-Thermal (PVT) Greenhouse Dryer: An Experimental Study." **International Conference on Global Warming and Sustainable Climate, SOLARIS 2012, at IIT BHU.**
- 5) **Sujata Nayak** and M.K. Ghosal. Performance Evaluation of Hybrid Photovoltaic-Thermal (PVT) and earth air heat exchanger greenhouse. **3<sup>rd</sup> International Conference Renewable Energy, 2012, at KIIT University, Bhubaneswar, Orissa.**
- 6) **Nayak S., Narwal K.,** AER Technology for Desalination process ISWATS International Conference at Pune, Maharashtra (April 21-23, 2016).
- 7) **Sujata Nayak, Ruchi Chaudhary, Kapil Narwal** "Energy matrices analysis of green house system integrated with PV/T & ground coupling for different weather conditions in india" international conference on global initiatives in applied sciences & green technologies, SRM University dated 9<sup>th</sup>-11<sup>th</sup> Sept, 2016.

**8) Sujata Nayak** and Ruchi Chaudhary. Development and Energy Analysis of PVT Dryer. SRM University dated 9<sup>th</sup>-11<sup>th</sup> Sept, 2016.

**9) Sujata Nayak.** Performance Analysis of hybrid Greenhouse dryer used for mint drying; An Experimental Study. International Conference on "Innovative Research in Engineering, Computers and Sciences 19-21 January, 2018.

**10)Sujata Nayak.** An Experimental Drying Study of Locally available Medicinal Plants by hybrid mixed even span Greenhouse dryer. International Conference on "SOLARIS-2019 on Renewable Energy & Sustainable Climate at Jamia Milia Islamia University, New Delhi on 7<sup>th</sup> -9<sup>th</sup> February, 2019.

#### **C. National Conference**

1) **Dr. Sujata Nayak.** Testing and Energy Analysis of a Mixed solar dryer. TEQIP-II Sponsered National Conference on Recent Developments in Mechanical Engineering, UIET, MDU Rohtak during Nov. 20-21, 2015.

2) **Dr. Sujata Nayak.** Detailed study of Mixed solar dryer; An Energy Analysis. A National Conference on Renewable Energy Sources for Sustainable Climate, February 07-09, 2017. SOLARIS-2017.

3) **Dr Sujata Nayak.** Modelling and Simulation of an Indirect solar dryer under no-load conditions. Sustainable Environment and Climate. February 07-09, 2017. SOLARIS-2020 held in SRMU Barabnki, UP, India.

#### **+ Research Supervised(PhD):**

1.Prashant Bhardwaj on "hybrid PVT indirect solar dryer integrated with kitchen chimney" Year – 2015 (Ongoing)

2. Nazish Ahmed Shamsi on "Applications of Evacuated Tube Collector" Year – 2019 (Ongoing)

3. Kanchan Rani on "Development and Mechanical Investigation on Magnesium Based Composite For Biomedical Application" Year – 2020 (Ongoing)

#### **+ Book/Chapter Publications:**

##### **D. Book Chapters**

1. Dr Sujata Nayak. **Book Chapter Titled "Design of an indirect solar dryer" Renewable Energy Technologies** Book. Edited by M. K. Ghosal. Narosa Publishing House, New Delhi. July 2017. **ISBN No. 978-981-10-3833-4\_18**

2. Dr Sujata Nayak. Book Chapter Titled "Economic Analysis of hybrid Photovoltaic-Thermal (PV/T) Integrated Indirect type Solar Dryer. Solar drying Technology Book. **Springer Publishing House**, New Delhi. Edited by Om Prakash and Anil Kumar. November 2017. **ISBN No. 978-81-8487-581-2**

#### **+ Administrative Responsibilities:**

1. Head of Department (Mechanical Engineering), MRU, Faridabad

2. Member of Academic Council

3. Chairman, Board of Studies

4. Member of Board of Faculty

5. Chairman of Departmental Research Committee

6. Departmental Coordinator for B.Tech (ME) programme, NBA, 2019

7. Departmental Coordinator for Curriculum Structuring and Syllabus finalization since 2009

8. Currently guiding three PhD research scholars under Manav Rachna University

**+ Professional Affiliation:**

Member of ISHRAE

**+ Expert Talk Delivered**

1. Topic title "Performance Evaluation of an integrated Hybrid Photovoltaic-thermal and Earth air heat Exchanger Greenhouse system". National Conference: Recent Developments in Science and Technology at Lingaya's GVKS Institute Of Management & Technology on May 28, 2016.
2. Topic titled Solar energy applications for green house system. Environment, Development & sustainability. YMCA University of Sc. & Tech. July 4-8, 2016
3. Topic titled "Application of Hybrid Photovoltaic-thermal and Earth air heat Exchanger Greenhouse system". AICTE Sponsered QIP Programme at CES, IIT Delhi on 8<sup>th</sup> May, 2015.
4. Co-Chaired the Technical Session-III in International Conference on "SOLARIS-2019" on Renewable Energy & Sustainable Climate at Jamia Milia Islamia University, New Delhi on 7<sup>th</sup> -9<sup>th</sup> February, 2019.
5. Judge in Poster Session in 8<sup>th</sup> International Symposium of Fusion of Science and Technology, held in JC Bose University of Science and Technology, YMCA University on 8th January, 2020.
6. Delivered an Invited talk on subject entitled" Hybrid PVT air collector and Earth air Heat Exchanger for Greenhouse in SOLARIS 2020-National Conference on Sustainable Environment and Climate held on February 07-09, 2017. SOLARIS-2020 held in SRMU Barabanki, UP, India.

**+ Event Organized(Conference/Seminar/FDP/Workshops**

1. Organized as Course Coordinator AICTE 2-weeks Faculty Development Program at Manav Rachna University on Solar Radiations: Green Option of Solar Energy on 11<sup>th</sup> May-23<sup>rd</sup> May, 2015.
2. As Organizing Secretary in National Conference titled" ESTESME 2017" at Manav Rachna University on 1<sup>st</sup> April, 2017.
- 3 As Coordinator for conducting Workshop on MATLAB in Mechanical Engineering Department at Manav Rachna University on May, 2015.

**+ Awards**

1. Awarded Women's Scientist -B (WOS-B) by DST, Government of India in the year 2007 to 2009 for project titled" Design of a Hybrid PV/T Indirect Solar Dryer".
2. Course Coordinator for 2 weeks FDP sponsored by AICTE on title "Solar Energy and its green option for Energy" in the year 2015.
3. Reviewer Certificate has been awarded in recognition of Research contribution as reviewer in ITME-2019- International Conference on Innovative Technologies in Mechanical Engg. held on Oct. 18-19. 2019, KIET Group of Institutions, Delhi-NCR.