

Bio-data

DR. SUNITA MAHAVAR

Assistant Professor,
Solar Energy Research Laboratory (SERL)
Department of Physics
University of Rajasthan
Jaipur-302004, Rajasthan, India
Phone No. +918239528824 (Mo)
Email: smjpr1986@gmail.com



ACADEMIC EXPERIENCE

From Dec. 2013 to cont. Assistant Professor, Department of Physics,
University of Rajasthan, Jaipur (India)

ACADEMIC QUALIFICATION:

- | | | |
|------------------------------|--|-----------|
| • Ph.D. (Physics) | University of Rajasthan, Jaipur, India | Dec. 2013 |
| • NET (JRF and SRF) | Council of Scientific and Industrial Research,
New Delhi, India | June 2008 |
| • M.Sc. (Physics) | University of Rajasthan, Jaipur, India | June 2008 |
| • B.Sc.(Phy., Chem. & Maths) | Maharani's College, University of Rajasthan,
Jaipur, India | June 2006 |

TEACHING EXPERIENCE:

Undergraduate courses

- Thermodynamics and statistical physics
- Waves and oscillation
- Electromagnetism

Postgraduate courses

- Solar Energy

RESEARCH INTEREST:

Development, fabrication and testing of solar thermal appliances (Solar water heater, solar cooker, solar still, solar concentrator etc.); synthesis of nanoparticles and their use in solar absorber materials

RESEARCH PROJECTS

- UGC Start-Up Grant by University Grants Commission, New Delhi, India
Project title: *Experimental study of a Building Material Solar Water Heaters and generation of solar radiation data through the instruments purchased from other grants*

Duration: 2 years (April 2015- March 2017)

Sanctioned amount: Rs. 6.00 lakh

- Department of Science and Technology, Technology Mission Division, Government of India, under Solar Energy Research Initiative Programme (SERI-2016).

Project title: *Development of low cost solar paraboloid collector systems for process heat generation*

Duration: 3 years (2017-2020)

Sanctioned amount: Awaited (about Rs. 45 lakh)

GUIDED STUDENT PROJECTS

- Master's Project work submitted to University of Kota, Kota Rajasthan, July 2014; Title: (i) A study of community type solar cooker, (ii) A study of electric back-up solar cooker-I, (iii) A study of community type solar cooker
- Undergraduate Inspire project submitted to Department of Science and Technology, New Delhi, May 2015; Title: Design development of small size solar concentrators using polymer reflector

INTERVIEWED/SHORTLISTED:

- SPMF (Shyampersadmukherji fellowship, CSIR), May 2009
- International conference travel support (2011 and 2012) by Department of Science and Technology (DST), New Delhi, Council of Scientific and Industrial Research (CSIR), New Delhi, Centre for International Co-operation in Science (CICS), Chennai

INTERNATIONAL/NATIONAL PARTICIPATION:

Invited talk

- Participated as **Indian expert delegation** (Supported by Ministry of Education and Science of the Republic of Bulgaria and Ministry of Science and Technology of the Republic of India) in **India-Bulgaria Scientific workshop** on Solar Energy: strategies, research and applications, 7-8 November, 2016, **Sofia, Bulgaria**. Organized by Central laboratory of Solar Energy and New Energy Sources (CL SENES)-(BAS). **Title of Talk:** Development of Solar Thermal Appliances using Building Materials
- Delivered **Invited talk** in International workshop on Fundamentals of solar thermal technologies, Dec. 5-6, 2016 at **University of Kota, Kota (India)** organized by Department of Pure and Applied Physics, University of Kota, (India). **Title of Talk:** Development and testing of solar thermal appliances.

Conference oral presentation

- National conference on Energy and Environment, 16-17 Sept. 2016, organized jointly by IIT, Madras and The Coimbatore district small industries association at CODISSIA, Coimbatore.
- Energy Meet, 22nd Nov. 2012, University of Kota, Kota, India.

- National Conference on Environmental Conservation and Management for Sustainable Era, 20-22nd Dec. 2012, S.S Jain Subodh P.G. College, Jaipur, India
- National Conference on Renewable Energy, 5-7 Nov., 2009, Vyas Institute of Engineering and Technology, Jodhpur, India.

Conference poster presentation

- 6th Solar cooker international world conference, 16-18th Jan. 2017, Muni Seva Ashram, Goraj, Vadodara (India)
- National conference on Science and Engineering (NCSE), 27-28 July, 2014, JK Lakshmipat University, Jaipur (India)
- International Congress on Renewable Energy ICORE, 2-4th Nov., 2011, Tezpur University, Assam India.
- International Conference on Renewable Energy ICRE, 17-21 Jan., 2011, University of Rajasthan, Jaipur, India.

Conference/Workshop participation as co-author/attended

- National conference on recent trends in science, engineering and management (NCRITSEM) 21st Oct. 2016, College of Engineering and Technology, Bikaner (India)
- National conference on renewable energy and energy conservation (NCREEC), May 20-21, 2016, Poornima University, Jaipur (India)
- Social relevance of research, 15 Feb. 2016, Human resource development centre, University of Rajasthan, Jaipur (India)
- International Conference on Nanostructuring by Ion Beams, ICNIB, 23-25th 2013, Jaipur, India.
- Workshop on Experimental methods in Condensed Matter Physics, 26-27th 2009, University of Rajasthan, Jaipur.
- International Conference on Renewable Energy ICRE, 17-21st Jan., 2011, University of Rajasthan, Jaipur, India.
- International Congress on Renewable Energy, 2-4th Nov. 2011, Tezpur University, Assam, India
- Third International Conference on Electroactive Polymers: Materials and Devices ICEP, 12-12 Oct. 2008, Jaipur, India.

PUBLICATIONS:

Book:

1. Mahavar S. Review of Materials Used in Various Solar Thermal Appliances. Solar Engineering-I (Applications) Vol. 5 Ch.6. Editors: Dr. Sri Sivakumar, Dr. Umesh Chandra Sharma & Dr. Ram Prasad, Studium Press LLC, USA. 2015.

International Journal

1. **Mahavar S.**, Rajawat P., Punia R.C., Verma M., Dashora P., Evaluating the optimum load range for box-type solar cookers., *Renewable Energy*, 74, 187-194, 2015.
2. **Mahavar S.**, Verma M., Rajawat P., Sengar N. and Dashora P., Novel solar cookers: suitable for small families, *International Journal of Sustainable Energy*, 2013, 32(6), 574-586.
3. **Mahavar S.**, Rajawat P., Marwal V.K., Punia R.C. and Dashora P., Modeling and on-field testing of a Solar Rice Cooker, *Energy*, 49, 404-412, 2012.
4. **Mahavar S.**, Sengar N., Rajawat P., Verma M. and Dashora P., Design development and performance studies of a novel Single Family Solar Cooker., *Renewable Energy*, 47, 67-76, 2012.
5. **Mahavar S.**, Sengar N., Verma M., Dashora, P., Extensive experimental studies of a Single Family Solar Cooker., *International Journal of Energy, Information and Communications*. 2(4), 169-179, 2011.
6. Rajawat P., **Mahavar S.**, Dashora P. Fabrication and Experimental Study of a Solar Cooker with Electrical Back-Up, *J. Energy Power Sources*, 1(4), 225-231, 2014.
7. Rajawat P, **Mahavar S.**, Dashora P. A Study of a Solar Tracking System (STS), *Advanced Electrochemistry*, 2, 84-89, 2014.
8. Sengar N., Dashora P., **Mahavar S.**, Punia R.C., Mathematical Formalism to Study Energy Distribution Pattern in Solar Hot Boxes for Global Solar Radiation, *International Journal of Innovative Research in Science, Engineering and Technology*, 3(12), 18148-156, 2014.
9. Sengar N., Dashora P., Gupta M., **Mahavar S.**, Experimental studies, energy saving and payback period of a cylindrical Building Material Housing Solar Cooker., *International Journal of Energy, Information and Communications*. 2(3), 75-84, 2011.

National Journal

10. Marwal V.K., Punia R.C., Sengar N., **Mahavar S.** and Dashora P., A comparative study of correlation functions for estimation of monthly mean daily global solar radiation for, Jaipur, Rajasthan (India), *Indian Journal of Science and Technology*, 5(5), 2729-32, 2012.
11. Sengar N., Dashora P., **Mahavar S.**, Low cost solar cooker: Promising solution towards reducing indoor air pollution from solid fuel use, *Indian Journal of Science and Technology*. 3(10), 1038-1042, 2010. (citation-5)

Communicated

Mahavar S., Sengar N., Dashora P., Analytical model for electric back up power estimation of solar box type cookers *Energy* (Revised).

International Conference/Workshop

1. **Mahavar S**, Sengar N, Dashora P, Electric back-up solar cooker: Fabrication and testing, In Proc. of 6th Solar cooker international world conference, 16-18th Jan. 2017, Muni Seva Ashram, Goraj, Vadodara (India)
2. **Mahavar S.**, Rajawat P, Punia R.C., Marwal V.K. and Dashora P., A theoretical and experimental study of glaze and insulation materials for efficient Solar Thermal Appliances, accepted in International Congress on Renewable Energy, 27-29th Nov. 2013, KIIT University, Bhubaneswar, Odisha, India.
3. **Mahavar S.**, Verma M., Rajawat P. and Dashora P., Fabrication and experimental findings of a Solar Rice Cooker, In Proc. of International Conference on Renewable Energies and Power Quality (ICRE PQ'12), 28-30th March 2012, Santiago de Compostela, Spain.
4. **Mahavar S.**, Sengar N. Verma M., Dashora P., Novel Solar Cookers: Suitable for single families, In Proc. of International Congress on Renewable Energy, 2-4th Nov. 2011, Tezpur University, Assam, India.
5. **Mahavar S.**, Dashora P., Sengar, N., Verma, M., Fabrication and performance studies of a small size solar cooker, In Proc. of International Conference on Renewable Energy, 17-21st Jan., 2011, University of Rajasthan, Jaipur, India.
6. Rajawat P, **Mahavar S.**, Verma M, Sengar N. and Dashora P., Fabrication and experimental study of a solar cooker with electrical back-up, accepted in International Congress on Renewable Energy, 27-29th Nov. 2013, KIIT University, Bhubaneswar, Odisha, India.
7. Verma M., **Mahavar S.**, Rajawat P. and Dashora P., Design development and experimental studies of a box type solar cooker with building material casing,, In Proc. of International Congress on Renewable Energy, 2-4th Nov. 2011, Tezpur University, Assam, India.
8. Marwal V., **Mahavar S.**, Sengar N., Verma M. and Dashora P., A study of correlation functions for estimation of solar radiation for the north-east areas of Rajasthan (India), Proc. of International Conference on Renewable Energy, 17-21st Jan., 2011, University of Rajasthan, Jaipur, India.
9. Dashora P., **Mahavar S.**, Sengar N., A study of thermal and cooking performance of nuclear family solar cooker. In Proc. of International Conference on Advances in Renewable Energy, 24-26th June 2010, Maulana Azad National Institute of Technology, Bhopal, India.
10. Marwal V. K., Punia R. C., **Mahavar S.** and Dashora P., A Simple Correlation Between Mean Hourly Solar Radiation and Local Time for North-East Region of Rajasthan (India), International Conference on Renewable Energy, 2-4th Nov. 2011, Tezpur University, Assam, India.
11. Sengar N., Gupta M., **Mahavar S.**, Poonia R.C. and P. Dashora, Performance studies and economic analysis of multi-purpose building-material-housing solar cookers: Boon for Rural Areas, Proc. of International Conference on Renewable Energy ICRE, 17-21st Jan., 2011, University of Rajasthan, Jaipur, India.

12. Gupta M., Sengar N., **Mahavar S.**, Verma M. and Dashora P., A study of solar cookers made with packaging-waste-materials: Design development, thermal & cooking performance and economic analysis, Proc. of International Conference on Renewable Energy ICRE, 17-21st Jan., 2011, University of Rajasthan, Jaipur, India.
13. Dashora P., Sengar N., **Mahavar S.** and Verma M., Solar thermal appliances a promising option for sustainable development, 12th International Conference of Academy of Physical Sciences, CONIAPS, 22-24th Dec., 2010, University of Rajasthan, Jaipur.
14. Dashora P., Sengar N., **Mahavar S.** and Gupta M., Dual Purpose Building-Material-Housing Solar Cooker: Boon for Rural Areas, Int. Con. On Advances in Renewable Energy, 24-26th June 2010, Maulana Azad National Institute of Technology, Bhopal, India.

National conferences

15. **Mahavar S.***Bafana M. and Dashora P. Poly (methyl methacrylate) (PMMA): A suitable glaze option in solar thermal appliances, In Proc. of National conference on Energy and Environment, 16-17 Sept. 2016, organized jointly by IIT, Madras and The Coimbatore district small industries association at CODISSIA, Coimbatore.
 16. **Mahavar S.**, Bhardwaj A. , Dashora P, Fabrication and testing of a light weight solar concentrator, In Proc. of National conference on renewable energy and energy conservation (NCREEC), May 20-21, 2016, Poornima University, Jaipur (India)
 17. **Mahavar S.**, Bhardwaj A. , Dashora P. Experimental study of Building material solar concentrator, In Proc. of National conference on recent trends in science, engineering and management (NCRTSEM) 21st Oct. 2016, College of Engineering and Technology, Bikaner (India)
 18. **Mahavar S.**, Shardul, Naj F, Punia RC., A study of community type solar cooker, In Proc. of National Conference on Science and Engineering, 27-28 July, 2014, JK Lakshmi Pat University, Jaipur.
 19. **Mahavar S.**, Naj F, Kachhawa R., Verma M., Fabrication and testing of an electric back-up solar cooker-II, In Proc. of National Conference on Science and Engineering, 27-28 July, 2014, JK Lakshmi Pat University, Jaipur.
 20. **Mahavar S.**, Kachhawa R., Shardul M., Rajawat P., Design development and experimental study of an electric back-up solar cooker-I, In Proc. of National Conference on Science and Engineering, 27-28 July, 2014, JK Lakshmi Pat University, Jaipur.
 21. **Mahavar S.**, Verma M., Rajawat P., Sengar N. and Dashora P., Design development and cooking performance study of three specific purpose solar cookers. In Proc. of National Conference on Environmental Conservation and Management for Sustainable Era, 20-22nd Dec. 2012, S.S Jain Subodh P.G. College, Jaipur, India.
-

22. **Mahavar S.**, Bafana M., Sengar N., Dashora P., A study of efficient glaze and insulation materials for use in solar thermal appliances. In Proc. of 3rd National Conference on Condensed Matter and Materials Physics (CMMP-2012), 3-6th March 2012, Sardar Patel University, Gujarat, India.
23. Rajawat P.,**Mahavar S.**, A study of solar tracking system (STS) for box type solar cookers, In Proc. of National Conference on Science and Engineering, 27-28 July, 2014, JK Lakshmipat University, Jaipur.
24. Rajawat P., **Mahavar S.**, Verma M., Sengar N. and Dashora P. Design development and experimental study of a solar cooker with electrical back-up, In Proc. of National Conference on Environmental Conservation and Management for Sustainable Era, 20-22nd Dec. 2012, S.S Jain Subodh P.G. College, Jaipur, India.
25. Dashora P., Sengar N., **Mahavar S.** and Gupta M., Dual Purpose Building-Material-Housing Solar Cooker: Boon for Rural Areas, Int. Con. On Advances in Renewable Energy, 24-26th June 2010, Maulana Azad National Institute of Technology, Bhopal, India.
26. Dashora P., **Mahavar S.**, Sengar N., Design development and on-field Studies of a Novel Nuclear Family Solar Cooker. In Proc. of National Conference on Renewable Energy. 5-7th Nov. 2009, Vyas Institute Engineering and Technology, Jodhpur, India.
27. Dashora P., Sengar N. and **Mahavar S.**, On-Field studies and payback periods of Novel Building-Material-Housing Solar Cooker. In Proc. of National Conference on Renewable Energy 5-7th Nov. 2009, Vyas Institute Engineering and Technology, Jodhpur, India.

PERSONAL PROFILE

Date of Birth : May 04, 1986
 Father's Name : Mr. Kajod Mal Mahavar
 Gender : Female
 Marital status : Single
 Address : Work -: Department of Physics, University of Rajasthan, JLN Marg, Jaipur-302004, Rajasthan, India.
 : Home- P.N. 25, Pushpanjali Colony, Mahesh Nagar, Jaipur-302015, Rajasthan, India