Vishal Bhalla

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EDUCATIONAL DETAILS

Ph.D.	Mechanical Engineering	Indian Institute of Technology Ropar, India, 2018
M.E.	Mechanical Engineering	Thapar University, Patiala, India, 2012(CGPA 8.49/10.0)
B.Tech.	Mechanical Engineering	Punjab Technical University, India, 2008 (CGPA 7.6/10.0)

RESEARCH AND PROFESSIONAL EXPERIENCE

2019-Present	Postdoc Research Associate, Brunel University, Uxbridge, London
2018-2019	Lecturer (on contract), National Institute of Technology Hamirpur
2017 - 2018	Research Associate, Indian Institute of Technology Ropar
2015 - 2017	Ph.D. Senior Research Scholar, Indian Institute of Technology Ropar
2013 - 2015	Ph.D. Junior Research Scholar, Indian Institute of Technology Ropar
2012	Assistant Professor, Mechanical Engineering Department, Lovely Professional University, Phagwara
2008 - 2009	Lecturer, Mechanical Engineering Department, Lovely Institute of Technology, Phagwara

PROFESSIONAL INTERESTS

Research:	Heat transfer, Nanofluids, Solar thermal energy
Teaching:	Solar thermal engineering, Wind energy, Heat and Mass Transfer, Refrigeration and Air conditioning

TECHNICAL SKILLS

Software/ Programming Skills	MATLAB, scilab, Minitab, COMSOL Multiphysics
Experimental Skills	UV-Visible-NIR spectroscopy, IR camera, National Instruments DAQ system & Lab View, Thermometry System

AWARD AND ACHIEVEMENTS

- Recipient of the **International Travel Award** awarded by the Department of Science and Technology (DST-SERB), Govt. of India, for attending SOLARIS Conference held at London, UK, July 2017.
- Recipient of **Institute fellowship**, **Ministry of Human Resource Development (MHRD),** Govt. of India, Jan. 2013- Dec. 2017.

SHORT TERM WORKSHOPS ORGANIZED/ATTENDED

- Organized and participated in Indo-US Workshop on **Recent Advances in Micro/Nanoscale Heat Transfer and Applications in Clean Energy Technologies,** held at Indian Institute of Technology Ropar, Rupnagar, Dec. 21-22, 2013.
- Organized and participated in a conference on **Emerging Trends on Mechanical Engineering,** held at Thapar University, Patiala, Feb. 24-26, 2011.
- Participated in a training program on **Modeling of Renewable Energy System using CFD,** held at Thapar University, Patiala, March 17-18, 2011.
- Participated in a national workshop on **Recent Developments in Energy Conversion Technologies**, held at Thapar University, Patiala, March 22-23, 2010.

PUBLICATIONS

Peer-reviewed Journals (Published)

[A08] **Bhalla, V.,** Beejawat, S., Doshi, J., Khullar, V., Singh, H., and Tyagi, H., 2020, "Silicone Oil Envelope for Enhancing the Performance of Nanofluid-based Direct Absorption Solar Collectors", Renewable Energy, Vol. 145, pp. 2733-2740. (doi:10.1016/j.renene.2019.08.024)

[A07] **Bhalla, V.,** Khullar, V., and Tyagi, H., 2019, "Investigation of Factors Influencing the Performance of Nanofluid-based Direct Absorption Solar Collector Using Taguchi Method", Journal of Thermal Analysis and Calorimetry, Vol. 135(2), pp. 1493-1505. (doi:10.1007/s10973-018-7721-x)

[A06] Salvi, S. S., **Bhalla, V.,** Taylor, R. A., Khullar, V., Otanicar, T. O., Phelan, P. E., and Tyagi, H., 2018, "Technological Advances to Maximize Solar Collector Energy Output: A Review", ASME Journal of Electronic Packaging, Vol. 140(4), p. 040802. (doi: 10.1115/1.4041219)

[A05] **Bhalla, V.,** Khullar, V., and Tyagi, H., 2018, "Experimental Investigation of Photo-Thermal Analysis of Blended Nanoparticles (Al_2O_3/Co_3O_4) for Direct Absorption Solar Thermal Collector", *Renewable Energy*, Vol. 123, pp. 616-626. (doi:10.1016/j.renene.2018.01.042)

[A04] **Bhalla, V.,** and Tyagi, H., 2018, "Parameters Influencing the Performance of Nanoparticles-laden Fluid-based Solar Thermal Collectors: A Review on Optical Properties", *Renewable & Sustainable Energy Reviews*, Vol. 84, pp. 12–42. (doi:10.1016/j.rser.2017.12.007)

[A03] Khullar, V., **Bhalla, V.,** and Tyagi, H., 2018, "Potential Heat Transfer Fluids (Nanofluids) for Direct Volumetric Absorption-Based Solar Thermal Systems", *ASME Journal of Thermal Science and Engineering Applications,* Vol. 10(1), p. 011009. (doi:10.1115/1.4036795)

[A02] **Bhalla, V.,** and Tyagi, H., 2017, "Solar Energy Harvesting By Cobalt Oxide Nanoparticles, A Nanofluid Absorption Based System", *Sustainable Energy Technologies and Assessments*, Vol. 24, pp. 45–54. (doi:10.1016/j.seta.2017.01.011)

[A01] Saroha, S., Mittal, T., Modi, P. J., **Bhalla, V.,** Khullar, V., Tyagi, H., Taylor, R. A., and Otanicar, T. P., 2015, "Theoretical Analysis and Testing of Nanofluids-Based Solar Photovoltaic/Thermal (PV/T) Hybrid Collector", *ASME Journal of Heat Transfer*, Vol. 137(9), p. 091015. (doi:10.1115/1.4030228)

Book Chapters

[B02] **Bhalla, V.,** Khullar, V., Singh, H., and Tyagi, H., 2018, "Solar Thermal Energy: Use of Volumetric Absorption in Domestic Application", In: Tyagi, H., Agarwal, A., Chakraborty, P., Powar, S., (eds.), *Applications of Solar Energy*, Springer. (doi:10.1007/978-981-10-7206-2_6)

[B01] **Bhalla, V.,** Khullar, V., and Tyagi, H., 2018, "Community-level Solar Thermal Systems", In: Ting, D., Carriveau, R., (eds.), Wind and Solar based Energy Systems for Communities, *Institution of Engineering and Technology (IET)*. (doi: 10.1049/PBPO130E_ch5)

Conference Papers and Posters

[C06] **Bhalla, V.,** Garg, K., Salvi, S. S., and Tyagi, H., "Effect of Blended Nanoparticles-laden Fluid on the Thermal Performance of Direct Absorption Solar Collector", Poster No. ISFM-1136, International Symposium on Functional Materials (IFSM-2018): Energy and Biomedical Applications, Chandigarh, India, Apr. 13-15, 2018.

[C05] **Bhalla, V.,** Garg, K., Khullar, V., and Tyagi, H., "Performance Characteristics of Nanospheroid Based Solar Thermal Collectors for Industrial Heating", Paper No. IHMTC2017-07-0775, *24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC-2017)*, Hyderabad, India, Dec. 27-30, 2017.

[C04] **Bhalla, V.,** Khullar, V., Singh, H., and Tyagi, H., "Liquid Layer Envelope for Curbing Radiative Losses in Nanofluid-Based Volumetric Receivers", *SOLARIS 2017 International Conference*, Brunel University London, London, U.K., Jul. 27-28, 2017.

[C03] **Bhalla, V.,** Khullar, V., and Tyagi, H., "Performance Characteristics of Direct Absorption Solar Collector for Residential Purposes", Paper No. SEEC-2017-004, *International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017)*, Mohali, India, Feb. 26-28, 2017.

[C02] **Bhalla, V.,** Khullar, K., and Tyagi, H., "Enhancement in optical properties of heat transfer fluid by using nanoparticles", *5th International and 41st National Conference on Fluid Mechanics and Fluid Power*, IIT Kanpur, Kanpur, India, Dec. 12-14, 2014.

[C01] Mittal, T., Saroha, S., **Bhalla, V.,** Khullar, V., Tyagi, H., Taylor, R. A., and Otanicar, T. P., "Numerical Study of Solar Photovoltaic/Thermal (PV/T) Hybrid Collector Using Nanofluids", Paper No. MNHMT2013-22090, *ASME 2013 4th Micro/Nanoscale Heat & Mass Transfer International Conference*, Hong Kong, China, Dec. 11-14, 2013.