

UNIVERSITY OF PRETORIA

Department of Mechanical and Aeronautical Engineering

Mohsen Sharifpur (CV)- Updated Nov. 2021

Professor and Head of Nanofluids Research Laboratory

C2 rated researcher by NRF (2017)

<https://scholar.google.co.za/citations?user=Ws1wL5MAAAAJ&hl=en&authuser=1>

Inventor of “Source and Sink Theory”

<https://dx.doi.org/10.22606/tp.2020.51001>



Within the top 2 percent of the most-cited scientists in the world

<https://dx.doi.org/10.17632/btchxktzyw>

1. BIOGRAPHICAL SKETCH

1.1 GENERAL INFORMATION

Surname	Sharifpur	First names	Mohsen
Citizenship	Permanent Resident of South Africa, Iranian	Title	Prof.
Population group	Asian	Marital status	Married
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1.2 ACADEMIC QUALIFICATIONS

Degree/ Diploma	Field of study	Higher education institution	Period	Year of registration	Distinctions
PhD	Mechanical Engineering (Thermal-Fluid)	EMU	4.5	2004	Yes (The only 4 out of 4)
MEng	Nuclear Engineering	Research and Science University	3	1998	Yes
MEng	Nuclear Engineering	Sharif University of Technology	1.5 (not completed)	1992	No
BEng	Mechanical Engineering	Shiraz University	5	1986	No

1.3 PROFESSIONAL REGISTRATION			
Pr. Eng.	Professional registration as professional engineer	ECSA (Engineering Council of South Africa)	2015

1.4 WORK EXPERIENCE TO DATE		
Name of employer	Capacity and/or type of work	Period
University of Pretoria	Professor	From January 2021
University of Pretoria	Associate Professor	January 2017- Dec. 2020
University of Pretoria	Senior Lecturer	Dec. 2009-Dec. 2016
EMU University	Research and Teaching assistant	2004-2009
Tire & Machine Industrial Co.	Project Manager and Engineer	2001 – 2004 (part-time)
Jahesh Sanat Co. (Innovation in industries Co.)	Member of board of directors	1999 - 2002
Academic Institute for Research and Education	Project Manager and Researcher	1996 - 2004
Airplane Maintenance	Researcher and Design Engineer	1994 - 1996

1.5 Editorial board and editorial duty

- **Guest editor** for Journal of *Sustainability* (ISI), **Impact Factor: 3.251**. Special Issue "Applications of Artificial Intelligence Model of Heat and Mass Transfer"
https://www.mdpi.com/journal/sustainability/special_issues/Model_Transfer/
- **Guest Editor** for *Journal of Frontiers In Energy Research* (ISI), **Impact Factor: 4.008**. Special Issue "Enhancing Heat Transfer by Using Nanofluid to Improve the Efficiency of Thermal Systems"
<https://www.frontiersin.org/research-topics/21038>
- **Guest Editor** for *International Journal of Thermofluid* (Elsevier). Special Issue on "Phase change materials and related technology applications towards thermal energy management and efficiency"
<https://www.journals.elsevier.com/international-journal-of-thermofluids/call-for-papers>
- **Guest Editor** for f Journal of *Micromachines* (ISI), **Impact Factor: 2.891**. Special Issue " Fluid Dynamics and Heat Transport in Microchannels".
https://www.mdpi.com/journal/micromachines/special_issues/FD_and_HT_in_Microchannels
- **Editorial board member** for *Journal of Mechanical Engineering*
<https://tumechj.tabrizu.ac.ir/journal/editorial.board?lang=en>
- **Associate Editor** for *Journal of Modern Nanotechnology* (JMN, ISSN 2788-8118)
<http://www.innovationforever.com/about-journal?journalcode=JMN&journalid=1339748319989231620>

**1.6 Evaluation of the Performance by line Manager in recent years
(combination of research, lecture and other duties)**

Year	Outcome	Line Manager
2020	97%	Prof. Josua Meyer
2019	97%	Prof. Josua Meyer
2018	97%	Prof. Josua Meyer

2. TEACHING AND LECTURING DUTIES

2.1 UNDERGRADUATE

2.1.1 Courses/modules presented:

Course	Level (second year, etc.)	Academic Institution	Degree/ Diploma	Compilation of study guides (Yes or No)	Curriculum design (Yes or No)
Computational Fluid Dynamics (MKM 411)	4 th	UP	BS	Yes	Yes
Computational Mechanics (MKM 420)	4 th	UP	BS	Yes	Yes
Continuum Mechanics (MKM 320)	3 rd	UP	BS	Yes	Yes
Porous Flow (MAN 420)	4 th	UP	BS	Yes	Yes
Introduction to Mechanical Eng.	1 st	EMU	BS	Yes	Yes
Solar Energy Eng. (assist)	4 th	EMU	BS	No	No
Fluid Mechanics (assist)	3 rd	EMU	BS	No	No
Heat Exchanger Design (assist)	4 th	EMU	BS	No	No
Thermodynamics II (assist)	3 rd	EMU	BS	No	No
Heat Transfer(assist)	3 th	EMU	BS	No	No
Capstone Team Project (assist)	4 th	EMU	BS	No	No

2.1.2 Study leader for design projects and research projects

The study leader for more than 200 design projects and research projects of final year undergraduate students in the department of mechanical and aeronautical engineering at UP since Dec. 2009.

2.1.3 External Examiner for Courses

Course	University	Year
Numerical Methods in Heat & Fluid Flow (MEC4045F)	University of Cape Town (UCT)	2013 & 2014
Fundamental of Heat Transfer (MECN3037/A)	University of Wits	2020

2.2 Courses/modules presented: POSTGRADUATE

Course	Level	Academic Institution	Degree/Diploma	Compilation of study guides (Yes or No)	Curriculum design (Yes or No)
THERMOFLOW (MTV 732)	MS	UP	MS	Yes	Yes
POROUS FLOW (MAN 780)	MS	UP	MS	Yes	Yes
ADVANCED FLUID MECHANICS (MSX 781)	MS	UP	MS	Yes	Yes

2.3 Educational courses attended

- Education Induction workshop (2010)
- Occupational Health and Safety workshop (2012)
- First Aid Level 1 & 2 (2016)

3. RESEARCH

RESEARCH FIELD:

Convective Multiphase Flow
 Nanofluids
 Porous Media
 Waste Heat to Work (and the effect on Global Warming)
 Solar Energy Engineering
 CFD
 Nuclear Heat Transport
 PCM

SPECIALITY

Heat transfer
 Convective Nanofluids
 Boiling Heat Transfer
 Computational Heat Transfer
 Convective in Porous Media
 Thermal-Fluid Analyses of Nuclear Reactors

3.1 RESEARCH DUTIES

3.1.1 Former Post-doc supervision or co-supervision (completed)

Name of researcher	Post-doc research title	Supervisor/ Co-supervisor(s)	Duration of studies (years)
Dr. Nwosu Paul Nwachukwu	Investigation into the models for effective viscosity of nanofluids.	Prof M. Sharifpur/ Prof JP Meyer	2010-2011
Dr. Mehdi Mehrabi	A new model for Nanofluids based on artificial intelligence	Prof M. Sharifpur/ Prof JP Meyer	2015-2016
Dr. Brusly Solomon Arulanandam	Investigation into magnetic nanofluids for natural convection	Prof M. Sharifpur/ Prof JP Meyer	October 2015- Mach 2017
Dr. Mostafa Mahdavi	Mathematical modeling and CFD simulation of nanoscale heat transfer	Prof M. Sharifpur/ Prof JP Meyer	January 2017- January 2018

3.1.2 Current Post-doc supervision or co-supervision

Name of researcher	Post-doc research title	Supervisor(s)	Duration of studies (years)
Dr. Mostafa Mahdavi	CFD simulation of transient nanofluid heat transfer	Prof JP Meyer & Prof M. Sharifpur	2020 - 2021
Dr. Umair Siddique	CFD simulation of a novel jet nanofluid heat transfer	Prof JP Meyer & Prof M. Sharifpur	2021 - 2022
Dr. Suseel Jaikrishnan	A novel Modeling for Hybrid nanofluid	Prof M. Sharifpur	January 2021 – Dec. 2022

3.1.3 Former supervision or co-supervision of postgraduate students (graduated)

Name of student	Degree/Title of dissertation/ thesis and date	Supervisor/ Co-supervisor(s)	Year of graduation
Roozbeh Vaziri	MSc / Experimental Study on Pressure Drops in Particle-Liquid Two-Phase Flow and Porous Media	Prof. Hikmet S Aybar/ Prof M. Sharifpur	2008
Mehdi Mehrabi	PhD / Modelling and Optimization of Thermophysical Properties and Convective Heat Transfer of Nanofluids by Using Artificial Intelligence Methods.	Prof M. Sharifpur/ Prof JP Meyer	2014
Tshimanga Ntumba	MSc / Experimental Investigation and Model Development for Thermal Conductivity of Glycerol-MgO Nanofluids	Prof M. Sharifpur/ Prof JP Meyer	2015
Saheed Adio	PhD / Mathematical modeling and experimental investigation into effective viscosity of nanofluids	Prof M. Sharifpur/ Prof JP Meyer	2015
Ibrahim Garbadeen	MEng / The experimental study of natural convection heat transfer of water/graphite nanofluids	Prof M. Sharifpur/ Prof JFM Slabber and Prof JP Meyer	2015
Kyoung Lee	MEng / Experimental investigation into cavity flow natural convection for ZnO nanofluids	Prof M. Sharifpur/ Prof JP Meyer	2016
Saboura Yousefi	MEng / Mathematical modeling and experimental investigation into Nanolayer of Nanofluids	Prof M. Sharifpur/ Prof JP Meyer	2016
Hadi Ghodsinezhad	MEng / CFD simulation and experimental investigation into cavity flow natural convection of Al ₂ O ₃ - Water Nanofluids	Prof M. Sharifpur/ Prof JP Meyer	2016
Gaettan K Katamba	MSc / Investigation into waste heat to work in thermal systems in order to gain more efficiency and less environmental defect	Prof M. Sharifpur/ Prof JP Meyer	2017
Mostafa Mahdavi	PhD / Study of flow and heat transfer features of nanofluids by CFD models: Eulerian multiphase and discrete Lagrangian approaches	Prof M. Sharifpur/ Prof JP Meyer	2017
Elmi Grove	MEng / A feasibility study on modification of one of the steam power plants of South Africa by using boiling condenser	Prof M. Sharifpur/ Prof JP Meyer	2017

Tanja Ottermann	MEng / CFD simulation and experimental investigation into cavity flow natural convection of TiO ₂ -water nanofluids	Prof M. Sharifpur/ Prof JP Meyer	2017
Johannes Joubert	MEng / Influence of a magnetic field on magnetic nanofluids for the purpose of enhancing natural convection heat transfer	Prof M. Sharifpur/ Prof JP Meyer	2017
Conrad Sanama	MSc / Mathematical modelling of flow downstream of an orifice under flow-accelerated corrosion	Prof M. Sharifpur/ Prof JP Meyer	2018
Vishal Ramnath	MEng / Mathematical Modelling of Nanofluid Thermophysical Properties Using Copulas	Prof M. Sharifpur/ Prof JP Meyer	2018
Nicolas Wilken	MEng / Experimental investigation of free-surface jet-impingement cooling by means of TiO ₂ -water nanofluid	Prof M. Sharifpur/ Prof JP Meyer	2020
Giwa Solomon Olanrewaju	PhD / Investigation into thermal-fluid properties of hybrid ferrofluids as heat transfer fluids	Prof M. Sharifpur/ Prof JP Meyer	2020
Sohaib Mustafa Mohammad Osman	PhD / Experimental investigation into convection heat transfer in the transition flow regime by using nanofluids in a rectangular channel	Prof M. Sharifpur/ Prof JP Meyer	2020

3.1.4 Current postgraduate students

Name of student	Degree	Project title	Supervisor	Co-supervisor(s)	Year of registration	Expected completion
Cornelius Siakachoma	PhD/ Part time	Efficiency Improvement of Solar Heaters	Prof. M. Sharifpur	Dr M. Mpghimi & Prof. J.P. Meyer	2017	July 2022
Saboura Yousefi	PhD/ Part time	Modeling and multi-objective optimization of heat transfer characteristics and pressure drop of nanofluids in microtubes.	Dr Mehdi Mehrabi	Prof. M. Sharifpur & Prof. J.P. Meyer	2017	July 2022

Hassan Bazai	PhD/ Full time	Mathematica modeling and CFD simulation of convective nanofluids for jet cooling	Prof. M. Sharifpur	Prof. J.P. Meyer	2019	July 2022
Collins Nwaokoch	PhD/ Full time	Heat transfer Enhancement by Convective Magnetic Nanofluids	Prof. M. Sharifpur	Prof. J.P. Meyer	2019	Dec. 2021
Modaser Hamid Morahed	PhD/ Full time	Heat transfer Enhancement by Convective Hybrid Nanofluids	Prof. M. Sharifpur	Prof. J.P. Meyer	2019	Dec. 2021
Vishal Ramnath	PhD/ Part time	Investigation of Optimal Thermophysical and Optical Characteristics for Nanofluid Based Solar Collecting Systems	Prof. M. Sharifpur	Prof. J.P. Meyer	2020	Dec. 2023
Sidhant Kumar Manilal	MEng/ Full time	The coupled effect of surface roughness and nanoparticle size on the heat transfer enhancement of nanofluids for pool boiling	Prof. M. Sharifpur	Prof. J.P. Meyer	2021	Dec. 2021
Rajesh Padiyaar	MEng/ Full time	Investigation into heat transfer enhancement by using nanofluids in jet cooling.	Prof. M. Sharifpur	Prof. J.P. Meyer	2021	Feb. 2022
Ibrahim Umar	PhD/ Full time	Investigation into heat transfer enhancement by using nanofluids in forced convection transient flow.	Prof. M. Sharifpur	Prof. J.P. Meyer	2020	Dec. 2023
Emmanuel Atofarat	PhD/ Full time	Investigation into heat transfer enhancement by using hybrid nanofluids in jet cooling.	Prof. M. Sharifpur	Prof. J.P. Meyer	2021	Dec. 2023

3.1.6 Examiner for Postgraduates Thesis

Year	Degree, candidate & Supervisor	Title of the Thesis	University
2012	MEng. M Hallquist, Prof. J.P. Meyer	Heat transfer and pressure drop characteristics of smooth tubes at a constant heat flux in the transitional flow regime	University of Pretoria
2013	MEng. PJ Yekoladio Prof T Bello-Ochende	Thermodynamic optimization of sustainable energy system: Application to the optimal design of heat exchangers for geothermal power systems	University of Pretoria
2016	MEng. S. Leith, Prof. JFM Slabber	An investigation into the external flow boiling phenomena on the surface of water cooled Zircaloy-4 and silicon carbide nuclear fuel cladding	University of Pretoria
2016	MEng. P. A. Prinsloo, Prof. J. Dirker	Investigation on turbulent heat transfer and pressure drop characteristics in the annuli of tube-in-tube heat exchangers	University of Pretoria
2016	MEng. J. Otto, Prof. JFM Slabber	Nuclear fusion of Li-6 H-2 crystals	University of Pretoria
2017	PhD M. K. Rashid, Prof. M. A. M. Salleh	Improving petroleum liquids flow in a rotating disk apparatus using structured inner surfaces and polymeric additives	University of Putra Malaysia
2019	PhD D. R. E. Ewim, Prof. J.P. Meyer	Condensation inside horizontal and inclined smooth tubes at low mass fluxes	University of Pretoria
2019	MEng A. M. Ndimande, Prof P. Tabakov	Heat Recovery in a Milk Powder Spray-Drying Process	Durban University of Technology

2020	MEng M Meyer, Dr M. Mehrabi	Modelling and multi-objective optimisation of heat transfer characteristics and pressure drop of nanofluids in microtubes	University of Pretoria
2020	PhD Deepti Charitar, Dr. Amos Madhlopa	Exploring the potential of nanofluids to enhance the productivity of solar stills	University of Cape Town
2020	PhD D Gopinath, Prof. E.G. Sundarm	Experimental studies on effect of oxygenated additive on performance, emission and combustion characteristics of multicylinder SI engine	Anna University
2021	MEng M.K. Seal, Dr M. Mehrabi	The prediction of condensation flow patterns by using artificial intelligence (AI) techniques	University of Pretoria
2021	PhD Aasa, Dr G. Mahmood	Convective heat transfer in a rectangular channel using various groove rough surfaces	University of Pretoria
2021	PhD J. C. Joubert, Prof. N. Wilke	Coupled DEM-MLM for Interaction Between Faceted Polyhedral Particles and Weakly Compressible Fluids	University of Pretoria
2021	MEng R.A. van der Walt, Prof. N. Wilke	Modelling of Resonant Acoustic Mixing of Dry Spherical Particles	University of Pretoria
2021	PhD D Vasudevan, Prof. D. Senthilkumar	Experimental Studies on Heat Transfer Enhancement in Pool Boiling Using Aqua Based Nanofluids	Anna University
2021	PhD S Veeramachaneni Prof. P. S. Kishore	Experimental Investigation on Performance of Miniature Loop Heat Pipe Using Novel Hybrid Nanofluids and Composite Wick Structures	Andhra University

Origin of research funds	Title of the research project	Duration
RESEARCH DEVELOPMENT PROGRAMME (RDP)	Investigation into Thermal–Fluid Behavior of Nanofluids	2010-2012
Fluxion-CSIR	Final year projects of my undergraduate students concerning CFD simulation	2014
IRT seed-funding	Investigation into Thermal–Fluid Behavior of Nanofluids	2014-2016
NRF-Intensive funding	Thermal–Fluid Behavior of Nanofluids	2017-2022
European Research Council (ERC)- -Horizon 2020 A part of an international collaboration (Grant No. 778104)	Phase-change application for thermal management of high-power microprocessors	2017-2022

Funds for building the prototype of an innovative idea	Title of the funded project	Duration
Funder: Technology Innovation Agency of South Africa	Emergency cooling	2016-2018

3.1.7 Awards

- **Best Paper award** in the 11th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT 2015), July 20-23, 2015, Kruger National Park, South Africa.
- **Winner of the Departmental Teaching and Learning Award in 2020** (in the Department of Mechanical and Aeronautical Engineering at University of Pretoria).

3.2 RESEARCH OUTPUT

3.2.1 Articles published in refereed accredited journals/chapter books

- 1 J Mustafa, S Alqaed, **M Sharifpur**, Incorporating nano-scale material in solar system to reduce domestic hot water energy demand, Sustainable Energy Technologies and Assessments, 2022, 49, 101735.
<https://doi.org/10.1016/j.seta.2021.101735>
- 2 Anurag Shrivastava, J. Prakash Arul Jose, Yogini Dilip Borole, R. Saravanakumar, **Mohsen Sharifpur**, Hossein Harasi, R.K. Abdul Razak, Asif Afzal, A study on the effects of forced air-cooling enhancements on a 150 W solar photovoltaic thermal collector for green cities, Sustainable Energy Technologies and Assessments, 2022, 49, 101782.
<https://doi.org/10.1016/j.seta.2021.101782>
- 3 Yacine Khetib, Ali Alzaed, Ahmad Alahmadi, Goshtasp Cheraghian, **Mohsen Sharifpur**, Application of hybrid nanofluid and a twisted turbulator in a parabolic solar trough collector: Energy and exergy models, Sustainable Energy Technologies and Assessments, 2022, 49, 101708.
<https://doi.org/10.1016/j.seta.2021.101708>
- 4 Muhammad Ibrahim, Awatef Abidi, Ebrahim A. Algehyne, Tareq Saeed, Goshtasp Cheraghian, **Mohsen Sharifpur**, Improvement of the energy and exergy efficiencies of the parabolic solar collector equipped with a twisted turbulator using SWCNT-Cu/water two-phase hybrid nanofluid, Sustainable Energy Technologies and Assessments, 2022, 49, 101705.
<https://doi.org/10.1016/j.seta.2021.101705>
- 5 Mostafa Mahdavi, **Mohsen Sharifpur**, Hikmet S. Aybar, Ali J. Chamkha, and Josua P. Meyer, Impact of micro-fins on a heated cylinder submerged in a nanofluid saturated medium, International Journal of Heat and Mass Transfer, 177 (2021) 121551.
<https://doi.org/10.1016/j.ijheatmasstransfer.2021.121551>
- 6 Seyyed Masoud Seyyedi, M. Hashemi-Tilehnoee, **M. Sharifpur**, Impact of Fusion Temperature on Hydrothermal Features of Flow within an Annulus Loaded with Nanoencapsulated Phase Change Materials (NEPCMs) during Natural Convection Process, Mathematical Problems in Engineering, 2021, Article ID 4276894.
<https://doi.org/10.1155/2021/4276894>
- 7 Sohaib Osman, **Mohsen Sharifpur**, Josua P. Meyer, Lingen Chen, The influence of high-porosity nickel foam on the transition flow regime for heat transfer and pressure drop characteristics in a rectangular channel, Journal of Thermal Analysis and Calorimetry (2021).
<https://doi.org/10.1007/s10973-021-11125-2>
- 8 Mohammadreza Kadivar, **M. Sharifpur** and J. P. Meyer, Convection heat transfer, entropy generation analysis and thermodynamic optimization of nanofluid flow in spiral coil tube, Heat Transfer Engineering, 2021, Vol. 42, Issue 18, Pages 1573-1589.
<https://doi.org/10.1080/01457632.2020.1807103>
- 9 C Nwaokocho, M Momin, S Giwa, **M Sharifpur**, SMS Murshed, JP Meyer, Experimental investigation of thermo-convection behaviour of aqueous binary nanofluids of MgO-ZnO in a square cavity, Thermal Science and Engineering Progress, 2021, 101057.
<https://doi.org/10.1016/j.tsep.2021.101057>

- 10 Mehdi Jamei, Iman Ahmadianfar, Ismail Adewale Olumegbon, Amin Asadi, Masoud Karbasi, Zafar Said, **Mohsen Sharifpur**, Josua P Meyer, On the specific heat capacity estimation of metal oxide-based nanofluid for energy perspective—A comprehensive assessment of data analysis techniques, *International Communications in Heat and Mass Transfer*, 2021, Vol. 123, 105217.
<https://doi.org/10.1016/j.icheatmasstransfer.2021.105217>
- 11 Raj Kumar, Sushil Kumar, Asif Afzal, A Muthu Manokar, **Mohsen Sharifpur**, Alibek Issakhov, Experimental investigation of impact of the energy storage medium on the thermal performance of double pass solar air heater, *Sustainable Energy Technologies and Assessments*, 2021, 48, 101673.
<https://doi.org/10.1016/j.seta.2021.101673>
- 12 Awatef Abidi, Muhyaddin Rawa, Yacine Khetib, Hatem Faiz Assad Sindi, **Mohsen Sharifpur**, Goshtasp Cheraghian, Simulation of melting and solidification of graphene nanoparticles-PCM inside a dual tube heat exchanger with extended surface, *Journal of Energy Storage*, 2021, Vol. 44, 103265.
<https://doi.org/10.1016/j.est.2021.103265>
- 13 Yacine Khetib, Abdullah Alhumaidi Alotaibi, Abdullah H Alshahri, Muhyaddin Rawa, Goshtasp Cheraghian, **Mohsen Sharifpur**, Impact of phase change material on the amount of emission in the double-glazed window frame for different window angles, *Journal of Energy Storage*, 2021, Vol. 44, 103320.
<https://doi.org/10.1016/j.est.2021.103320>
- 14 PC Santhosh Kumar, R Naveenkumar, **Mohsen Sharifpur**, Alibek Issakhov, M Ravichandran, V Mohanavel, Navid Asfatahi, Asif Afzal, Experimental investigations to improve the electrical efficiency of photovoltaic modules using different convection mode, *Sustainable Energy Technologies and Assessments*, 2021, Vol. 48, 101582.
<https://doi.org/10.1016/j.seta.2021.101582>
- 15 Yacine Khetib, Khaled Sedraoui, Ammar A Melaibari, Ali Alzaied, Radi Alsulami, **Mohsen Sharifpur**, Heat transfer and pressure drop in turbulent nanofluid flow in a pin-fin heat sink: Fin and nanoparticles shape effects, Yacine Khetib, Khaled Sedraoui, Ammar A Melaibari, Ali Alzaied, Radi Alsulami, Mohsen Sharifpur, *Case Studies in Thermal Engineering*. 2021, Vol. 28, 101378.
<https://doi.org/10.1016/j.csite.2021.101378>
- 16 K Ajith, Archana Sumohan Pillai, IV Muthu Vijayan Enoch, **M Sharifpur**, A Brusly Solomon, JP Meyer, Effect of the non-electrically conductive spindle on the viscosity measurements of nanofluids subjected to the magnetic field, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 2021, Vol. 628, 127252.
<https://doi.org/10.1016/j.colsurfa.2021.127252>
- 17 Khetib Y., Abo-Dief H.M., Alanazi A.K., Cheraghian G., Sajadi S.M., Sharifpur M., Correlations for Total Entropy Generation and Bejan Number for Free Convective Heat Transfer of an Eco-Friendly Nanofluid in a Rectangular Enclosure under Uniform Magnetic Field. *Processes* 2021, 9, 1930.
<https://doi.org/10.3390/pr9111930>
- 18 Khetib Y., Alotaibi A.A., Alshahri A.H., Cheraghian G., **Sharifpur M.**, Meyer J.P., Study on the Effect of Hole Size of Trombe Wall in the Presence of Phase Change Material for Different Times of a Day in Winter and Summer. *Processes*, 2021, 9, 1886.
<https://doi.org/10.3390/pr9111886>
- 19 Yacine Khetib, Ahmad Aziz Alahmadi, Ali Alzaed, S Mohammad Sajadi, Goshtasp Cheraghian, **Mohsen Sharifpur**, Numerical study of the effect of graphene nanoparticles in calcium chloride hexahydrate-based phase change material on melting and freezing time in a circular cavity with a triangular obstacle, *Journal of Energy Storage*, 2021, Vol. 43, 103243.
<https://doi.org/10.1016/j.est.2021.103243>

- 20 Borode A.O., Ahmed N.A., Olubambi P.A., **Mohsen Sharifpur**, Josua P. Meyer, Effect of Various Surfactants on the Viscosity, Thermal and Electrical Conductivity of Graphene Nanoplatelets Nanofluid. *Int J Thermophys* 2021, 42, 158.
<https://doi.org/10.1007/s10765-021-02914-w>
- 21 Khetib Y, Abo-Dief HM, Alanazi AK, Saleem HA, Sajadi SM and **Sharifpur M**, Simulation of Alumina/Water Nanofluid Flow in a Micro-Heatsink With Wavy Microchannels: Impact of Two-Phase and Single-Phase Nanofluid Models, *Front. Energy Res.*, 2021, 9, 760201.
<https://doi.org/10.3389/fenrg.2021.760201>
- 22 Man-Wen Tian, Yacine Khetib, Shu-Rong Yan, Muhyaddin Rawa, **Mohsen Sharifpur**, Goshtasp Cheraghian, Ammar A Melaibari, Energy, exergy and economics study of a solar/thermal panel cooled by nanofluid, *Case Studies in Thermal Engineering*, 2021, Vol. 28, 101481.
<https://doi.org/10.1016/j.csite.2021.101481>
- 23 Kelvin U Efemwenkikie, Sunday O Oyedepo, Solomon Giwa, **Mohsen Sharifpur**, Taiwo F Owoeye, Kehinde D Akinlabu, Josua Meyer, Experimental investigation of heat transfer performance of novel bio-extract doped mono and hybrid nanofluids in a radiator, 2021, Vol. 28, 101494.
<https://doi.org/10.1016/j.csite.2021.101494>
- 24 Yacine Khetib, Hala M Abo-Dief, Abdullah KK Alanazi, S Mohammad Sajadi, **Mohsen Sharifpur**, Josua P Meyer, A Computational Fluid Dynamic Study on Efficiency of a Wavy Microchannel/Heat Sink Containing Various Nanoparticles, *Micromachines*, 2021, Vol. 12 (10), 1192.
<https://doi.org/10.3390/mi12101192>
- 25 Khetib Y., Alahmadi A., Alzaed A., Saleem H.A., **Sharifpur M.**, Cheraghian G., Numerical Study of Natural Convection of Biological Nanofluid Flow Prepared from Tea Leaves under the Effect of Magnetic Field, *Processes*, 2021, 9, 1824.
<https://doi.org/10.3390/pr9101824>
- 26 Raj Kumar, Rahul Nadda, Sushil Kumar, Khusmeet Kumar, Asif Afzal, RK Abdul Razak, **Mohsen Sharifpur**, Heat transfer and friction factor correlations for an impinging air jets solar thermal collector with arc ribs on an absorber plate, *Sustainable Energy Technologies and Assessments*, 2021, Vol. 47, 101523
<https://doi.org/10.1016/j.seta.2021.101523>
- 27 Abdullah K Alanazi, Yacine Khetib, Hala M Abo-Dief, Muhyaddin Rawa, Goshtasp Cheraghian, **Mohsen Sharifpur**, The effect of nanoparticle shape on alumina/EG-water (50: 50) nanofluids flow within a solar collector: Entropy and exergy investigation, *Case Studies in Thermal Engineering*, 2021, Vol. 28, 101510.
<https://doi.org/10.1016/j.csite.2021.101510>
- 28 Yacine Khetib, Hala M Abo-Dief, Abdullah K Alanazi, S Mohammad Sajadi, Suvanjan Bhattacharyya, **Mohsen Sharifpur**, Optimization of heat transfer in shell-and-tube heat exchangers using MOGA algorithm: adding nanofluid and changing the tube arrangement, *Chemical Engineering Communications*, 2021, 1-15.
<https://doi.org/10.1080/00986445.2021.1983548>
- 29 Yacine Khetib, Ahmad Alahmadi, Ali Alzaed, **Mohsen Sharifpur**, Goshtasp Cheraghian, Cornelius Siakachoma, Simulation of a parabolic trough solar collector containing hybrid nanofluid and equipped with compound turbulator to evaluate exergy efficacy and thermal-hydraulic performance, *Energy Sci. Eng.* 2021,1–14.
<https://doi.org/10.1002/ese3.975>
- 30 Yacine Khetib, Hala M Abo-Dief, Abdullah K Alanazi, Muhyaddin Rawa, S Mohammad Sajadi, **Mohsen Sharifpur**, Competition of ANN and RSM techniques in predicting the behavior of the CuO-liquid paraffin, *Chemical Engineering Communications*, 2021, 1-13.
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- 206** **Mohsen Sharifpur**, Sholeh Rostamirad, 2008, Experimental Investigation of Conditions of Water Diffusion in Quality of Legumes. 4th International Conference on Diffusion in Solids and Liquids (DSL2008), Barcelona, Spain, 11 July 2008.
- 207** **Mohsen Sharifpur**, 2008, Waste to Energy in power plants; Increasing Thermal Efficiency and Decreasing Environment Defects, International Multi-Conference on Engineering and Technological Innovation: IMETI 2008, USA.
- 208** **Mohsen Sharifpur**, 2008, Designing New Cooling System for Automobiles to Get more Fuel Efficiency and Less Environment Defects, ASME -IMECE2008-68413, Vol. 17: Transportation Systems, pp. 355-359, USA.
- 209** **Mohsen Sharifpur**, 2007a, Designing Boiling Condenser for more Efficiency in Power Plants and less Environment Defects, ASME -POWER2007-22201, pp. 55-59, USA.
- 210** B. Y. Aldabbagh, **Mohsen Sharifpur**, Mahdi Zamani, 2007, Experimental Study of Free convection about a Vertical flat plate in Porous Media, DSL 2007 Conference, Portugal.
- 211** Hikmet S. Aybar, **Mohsen Sharifpur**, 2007, Simplification of Ensemble Averaged Two - Phase Flow with Heat and Mass Transfer for Boiling Inside channels, DSL2007 Conference, Portugal.
- 212** **Mohsen Sharifpur**, 2006, Overall Review of Modelling in Convective Two-Phase Flow, ASME International Conference, Yeditepe University, Istanbul, Turkey.
- 213** **Mohsen Sharifpur**, Mahmoud Salehi, Ali Nouri Brojerdi and Ali Arefmanesh, 2003, Ensemble Averaged Bubbly Two-Phase Flow Numerical Simulation in Vertical Ducts for the Void-Studying Behavior in BWRs, 11th International Conference on Nuclear Engineering ASME -ICONE 11, p.290, Japan.

OTHER SCHOLARLY RESEARCH-BASED CONTRIBUTIONS

i. Referee duties and collaboration with conferences

- Reviewer for refereed accredited journals **including** International Journal of Heat and Mass Transfer, Experimental Thermal and Fluid Science, Energy, International Communications in Heat and Mass Transfer, International Journal of Thermal Sciences, Renewable Energy, Journal of Thermal Analysis and Calorimetry, Heat Transfer Engineering, Journal of the Taiwan Institute of Chemical Engineers, Journal of Magnetism and Magnetic Materials, Computer Methods and Programs in Biomedicine, RSC Advances Journals, Engineering Science and Technology: an International Journal, Journal of Applied Physics, Alexandria Engineering Journal, Journal of Porous Media, International Journal of Applied and Computational Mathematics, Journal of Advanced Research, American Society of Mechanical Engineers (ASME) journals including Heat transfer, International Journal of Green Energy, International Journal of Energy Research and Nuclear Engineering and Design.
- Reviewer for IHTC14, the 14th ASME International Heat Transfer Conference to be held in Washington DC in August, 2010.
- Reviewer for IMETI 2010, The 3rd International Multi-Conference on Engineering and Technological Innovation: June 29th - July 2nd, 2010 – Orlando, Florida, USA
- Reviewer for IHTC14-2010, The 14th International Heat Transfer Conference: August 8th -13th, 2010 – Washington D.C., USA.
- Reviewer for IMETI 2011, The 4th International Multi-Conference on. Engineering and Technological Innovation: *IMETI 2011*. July 19th - July 22nd, 2011 – Orlando, Florida, USA
- Reviewer for 1st International Conference on Nanostructures and Nanomaterial: Science and Application Nanotech2012, February 7-9, 2012
- **Invited Keynote Speaker** at the 1st International Conference on Nanostructures and Nanomaterial: Science and Application Nanotech2012, February 7-9, 2012, Masjed-Soleyman, Iran.
- Section chair at 1st International Conference on Nanostructures and Nanomaterial: Science and Application Nanotech2012, February 7-9, 2012, Masjed-Soleyman, Iran.
- Reviewer for SASEC-2012, ASME 2012, The 2nd Southern African Solar Energy Conference, 21-23 May 2012, Stellenbosch, South Africa.
- Technical Program Committee Member for The International Workshop on Electromagnetism and Communication Engineering (ECE 2012), July 27th -29th, 2012, Baotou, China.
- Technical Program Committee Member at 2012 The 3rd International Conference on Mechanic Automation and Control Engineering (MACE 2012), July 27th -29th, 2012, Baotou, Inner Mongolia, China.
- Guest Editor for selected papers of the 3rd International Conference on Mechanic Automation and Control Engineering (MACE 2012) in order to publish as the special issues of international journals.
- Reviewer for IMETI 2012, The 5th International Multi-Conference on. Engineering and Technological Innovation: IMETI 2012. July 17th - July 20th, 2012 – Orlando, Florida, USA.
- Reviewer for IMECE2012, ASME 2012 International Mechanical Engineering Congress & Exposition, IMECE 2012, November 9-15, 2012, Houston, Texas, USA.

- Jury member for poster section of the 3rd International Conference on Composites: Characterization, Fabrication and Application (CCFA-3) December 18-19, 2012. Tehran, Iran.
- Reviewer for ICAE 2013, International Conference on Applied Energy ICAE 2013, Jul 1-4, 2013, Pretoria, South Africa.
- Technical program committee member for HEFAT2014 (10th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics) July 14-16, 2014, Orlando, Florida, USA.
- Reviewer for HEFAT2014 (10th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics) July 14-16, 2014, Orlando, Florida, USA.
- Reviewer for SASEC (3rd Southern African Solar Energy Conference) May 11-13, 2015, Kruger National Park, South Africa.
- Conference Organising Committee member for SASEC (3rd Southern African Solar Energy Conference) May 11-13, 2015, Kruger National Park, South Africa.
- Section chair at the 4th International Conference on Composites: Characterization, Fabrication and Application (CCFA-4) December 16-17, 2014. Tehran, Iran.
- Jury member for poster competition section of the 4th International Conference on Composites: Characterization, Fabrication and Application (CCFA-4) December 16-17, 2014. Tehran, Iran.
- Reviewer for an academic book entitled “Heat Transfer Enhancement with Nanofluids”, CRC press, by Taylor & Francis Group, 2015.
- Technical program committee member for HEFAT2015 (11th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics), July 20-23, 2015, Kruger National Park, South Africa.
- Session chair for HEFAT2015 (11th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics), July 20-23, 2015, Kruger National Park, South Africa.
- International technical program committee member for “Energy, Material & Nanotechnology International Meeting on Microfluidics and Nanofluidics”, April 05-08, 2016, Dubai, United Arab Emirates.
- **Invited speaker** at “7th World Nano Conference”, at Track of: Nano Applications, June 20-21, 2016, Cape Town, South Africa.
- International technical program committee member for “2nd International Conference on Environmental and Civil Engineering Technology (ENVICET 2016), October 4 – 6, 2016, Penang, Malaysia.
- Technical program committee member for HEFAT2016 (12th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics), July 11-13, 2016, Malaga, Spain.
- Reviewer and technical program committee member for “22nd Solar Power and Chemical Energy System Conference (SolarPACES 2016)”, 11 - 14 October 2016, Abu Dhabi, UAE.
- Designated Reviewer for AR4MET 2017, The 3rd Advanced Research in Material Sciences, Manufacturing, Mechanical and Mechatronic Engineering Technology International Conference, 7 – 9 November 2017, Melaka, Malaysia.
- Technical program committee member for HEFAT2017 (13th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics), 17 -19 July 2017, Portorož, Slovenia.
- Chairperson of conference oral presentations session “Nano and Microscale Transport-2 (NMT2), 16th

International Heat Transfer Conference, China National Convention Center, Beijing, China, August 10-15, 2018.

- Organizing Committee Member for symposium of “14th World Conference on Applied science, Engineering and Technology” (14th WCASET-18) on 21st-22nd November 2018, Kuala Lumpur, Malaysia.
- **Invited Keynote Speaker (opening ceremony)** for 1st International Conference on Nanofluids (ICNf) and the 2nd European Symposium on Nanofluids (ESNf), Castelo, Spain, June 26th-28th, 2019.
<http://icnf2019.com/index.php/program/confirmed-plenary-lectures>
- International Committee Member for 5th International Conference on Mechanical Engineering Research (ICMER 2019), Kuantan, Pahang, Malaysia, 30th to 31st of July, 2019.
- Advisory committee member for the First International Conference on Emerging Trends in Industry 4.0 (ETI 4.0) will be conducted in OP Jindal University, Raigarh, India during 19th to 21st May 2021.
<http://www.conference.opju.ac.in/IEEE/advisory-committee.php>
- **Plenary Speaker** for International Conference on Magnetism and Magnetic Materials October 28-30, 2021 Vancouver, Canada.
<https://www.pagesconferences.com/magnetism-magnetic-materials/>
- International TPC Member for the 2nd International Conference on Physics, Mechanics and Mathematical Science (PMMS 2021), November 20-21, 2021 at Optics Valley Kingdom Plaza in Wuhan, China.
<http://www.pmms2021.com/page/Committee/>

b. Workshop and short courses presented

- Mohsen Sharifpur, Airflow measurement, Airflow dynamics & Ventilation, As apart of workshop of: Building Design & Engineering Approaches to Infection Control Course, August 2016.
- Mohsen Sharifpur (UP) and Reza Azizian (MIT), One-day Nanofluids Workshop, University of Science and Culture, Iran, 29 Dec. 2016.
- Mohsen Sharifpur, Airflow measurement, Airflow dynamics & Ventilation, As apart of workshop of: Building Design & Engineering Approaches to Infection Control Course, August 2017.
- Mohsen Sharifpur, Two days Workshop on THERMAL FLUID SYSTEMS, Johannesburg, South Africa, May 10th and 11th, 2018.
- Mohsen Sharifpur, Airflow measurement, Airflow dynamics & Ventilation, As apart of workshop of: Building Design & Engineering Approaches to Infection Control Course, August 2018.
- Mohsen Sharifpur, Airflow measurement, Airflow dynamics & Ventilation, As apart of online workshop of: Building Design & Engineering Approaches to Infection Control Course, Sept. 2020.

c. Teamwork and collaboration with others

- Member of the research group entitled “Thermofluids Research Group” in the Department of Mechanical and Aeronautical Engineering at University of Pretoria, South Africa, since Dec. 2009.
- Member of the research group entitled “Evaluation of thermal properties of nanofluids” in the Mech. Eng. Dep. at EMU University 2007-2009.
- Speaker for postgraduate students, Nanofluids and the Opportunities, Tarbiyat Modares University, January 2013.
- Speaker for postgraduate students (Civil Engineering), Some Applications of Thermal Fluid Science to Civil

Engineering, Science and Culture University, January 2013.

- Member of South Africa Solar Thermal Technology Platform (STTP), working Group 3: Solar Heat for Industrial Applications.
- Reviewer of applications for international scholarships for South Africans to study abroad in 2018, facilitated by The Department of Higher Education and Training (DHET) of South Africa.

3.6 Membership of national and international bodies

- Member in the American Society of Mechanical Engineers (ASME) since 2004.
- Member in the International Institute of Informatics and Systemic (IIS) since March 2008
- Registered as profession engineer at ECSA (Pr. Eng.)

MANAGEMENT AND ADMINISTRATIVE DUTIES (LEADERSHIP)

Involvement in departmental activities (e.g. administrative functions), faculty (e.g. faculty committees) or other university activities

- Organizer of the Fluid Mechanics Laboratory in the Mech. Eng. Dep. at EMU (2004-2009)
- Preparing the CFD division of Mech. Eng. Dep. (EMU) multi project for submitting in European Union (EU), March 2005.
- Head of the group of “Design of Experiment (DOE)” for all of the Laboratories of Mech. Eng. Dep. at EMU (2006-2007).
- **Establisher and Head for Nanofluids Research Laboratory in the Department of Mechanical and Aeronautical Engineering at University of Pretoria Since April 2010.**
- Responsible for workshop/training of CFD software packages (ANSYS-FLUENT, STAR CCM+ and FLoEFD) in the Department of Mechanical and Aeronautical Engineering at University of Pretoria Since January 2012.
- Responsible for allocation of Teaching Assistants (TAs) to the courses presented by Thermal-fluid division of the Department of Mechanical and Aeronautical Engineering at University of Pretoria Since 2016.
- **Member of Departmental Management Committee** for Department of Mechanical and Aeronautical Engineering at University of Pretoria Since 2018.