Sumit Kumar Mehta

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Scopus profile: https://www.scopus.com/authid/detail.uri?authorId=57203276466

Publons profile: https://publons.com/researcher/3754818/sumit-kumar-mehta/

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ORCID: 0000-0001-8806-3767, https://orcid.org/0000-0001-8806-3767

Google scholar: https://scholar.google.co.in/citations?user=Rk-6RA0AAAAJ&hl=en

Researchgate: https://www.researchgate.net/profile/Sumit-Mehta

Career Objective

Seeking a responsible post of Assistant professor for giving the practical and theoretical knowledge which makes the student's career progressive.

Profile

I am experienced in CFD simulations using the finite element method (COMSOL Multiphysics) and finite volume method (ANSYS Fluent) based software on studying the heat, fluid flow, and chemical species transport characteristics. These simulations are used to study many real-life problems. Also, I did analytical solutions to investigate the electrokinetic flow and heat transfer characteristics for non-Newtonian fluid flow through the plane microchannel, using MATLAB and COMSOL Multiphysics software. Further, the demonstrations of these simulations able to give a new direction for the future among undergraduate students.

Skills

CFD simulation, Micromixing, Electroosmotic flow; Chemosmotic flow; Magneto-hydro-dynamic flow; Nanofluid flow, Forced, mixed, and natural convective heat transfer; Non-Newtonian fluid flow and heat transfer; Porous media flows; Electrochemical sensor species and flow transport; COMSOL Multiphysics simulation; ANSYS Fluent simulation, Analytical solution using MATLAB.

Education

PhD (Continue)
Mechanical Engineering,

Department of Mechanical Engineering, National Institute of Technology Silchar, India-788010
Year: 2017 to present, (*Successfully completed the PhD synopsis seminar and expected to submit the thesis in the first week of May, 2022*)
Title of thesis: Hydrodynamic and electroosmotic micromixing characteristics for flow through wavy channels

Master of Technology
Thermal Engineering,
Department of Mechanical Engineering, National Institute of Technology Silchar, India-788010
Year: 2015 to 2017
CPI: 8.92
Title of the thesis: Numerical investigation of thermo-hydraulic transport characteristic in wavy channels

Bachelor of Technology
Mechanical Engineering, Asansol Engineering College, Asansol, West Bengal, India-713305
DGPA: 8.6
Year: 2011-2015

Intermediate Examination (10+2)
Subject: Hindi, English, Mathematics, Physics, Chemistry. Board: Bihar School Examination Board, Percentage: 72.8%, Year of passing: 2010

Secondary School Examination (10)
Subject: Hindi, Sanskrit, Mathematics, Social science, Science, English, Advanced mathematics. Board: Bihar School Examination Board, Percentage: 74.8%, Year of passing: 2008

GATE details
Qualified GATE 2015 in Mechanical Engineering (ME)/ GATE score: 472/ GATE rank 14360 in total 185758 participant

Personal details

DOB: 09/09/1991
Languages known: English, Hindi
Permanent Address: Village: Majhauliya, PO: Chandanpatti, PS: Sakra, District: Muzaffarpur, Bihar-843104.

International publication (author/total/volume/page no./year/doi/impact factor/Quartiles/ (SCIE or SCOPUS indexing))

1. K. N. Vasista, **S. K. Mehta**, S. Pati, Electroosmotic mixing in a microchannel with heterogeneous slip dependent zeta potential, Chemical Engineering and Processing - Process Intensification. 108940 (2022). https://doi.org/10.1016/j.cep.2022.108940 *Impact Factor: 4.237, Q1, SCIE/SCI*

2. **S.K. Mehta,** S. Pati, Analysis of thermo-hydraulic characteristics for flow of MWCNT-Fe_3O_4/H_2O hybrid nanofluid through a wavy channel under magnetic field, *Proc. Inst. Mech. Eng. Part E J. Process Mech. Eng.* (2022) https://doi.org/10.1177/09544089221094206 *Impact Factor: 1.620, Q2, SCIE/SCI*
3. **S. K. Mehta**, S. Pati, Enhanced electroosmotic mixing in a wavy micromixer using surface charge heterogeneity, *Industrial & Engineering Chemistry Research* 61(7) (2022) 2904–2914. https://doi.org/10.1021/acs.iecr.1c04318 *Impact Factor: 3.72, Q1, SCIE/SCI*
4. **S. K. Mehta**, S. Pati, L. Baranyi, Effect of amplitude of walls on thermal and hydrodynamic characteristics of laminar flow through an asymmetric wavy channel, Case Studies in Thermal Engineering, 31 (2022) 101796. https://doi.org/10.1016/j.csite.2022.101796 *Impact Factor: 4.724, Q1, SCIE/SCI*
5. K. N. Vasista, **S. K. Mehta**, S. Pati, S. Sarkar, Electroosmotic flow of viscoelastic fluid through a microchannel with slip-dependent zeta potential, *Physics of Fluids*, 33 (2021), 123110. https://doi.org/10.1063/5.0073367 *Impact Factor: 3.521, Q1, SCIE/SCI*
6. S. Pabi, **S. K. Mehta**, S. Pati, Analysis of thermal transport and entropy generation characteristics for electroosmotic flow through a hydrophobic microchannel considering viscoelectric effect, *International Communications in Heat and Mass Transfer*, 127 (2021) 105519. https://doi.org/10.1016/j.icheatmasstransfer.2021.105519 *Impact Factor: 5.683, Q1, SCIE/SCI*
7. B. Mondal, **S. K. Mehta**, P. K. Patowari, S. Pati, Numerical analysis of electroosmotic mixing in a heterogeneous charged micromixer with obstacles, *Chemical Engineering and Processing-Process Intensification*, 168(2021) 108585. https://doi.org/10.1016/j.cep.2021.108585 *Impact Factor: 4.237, Q1, SCIE/SCI*
8. D. Banerjee, **S. K. Mehta**, S. Pati, P. Biswas, Analytical solution to heat transfer for mixed electroosmotic and pressure-driven flow through a microchannel with slip-dependent zeta potential, *International Journal of Heat and Mass Transfer*, 181(2021) 121989. https://doi.org/10.1016/j.ijheatmasstransfer.2021.121989 *Impact Factor: 5.584, Q1, SCIE/SCI*
9. K. N. Vasista, **S. K. Mehta**, S. Pati, Numerical assessment of hydrodynamic and mixing characteristics for mixed electroosmotic and pressure-driven flow through a wavy microchannel with patchwise surface heterogeneity, *Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering*, (2021). https://doi.org/10.1177/09544089211051640 *Impact Factor: 1.620, Q2, SCIE/SCI*
10. **S.K. Mehta**, S. Pati, P.K. Mondal, Numerical study of the vortex induced electroosmotic mixing of non-Newtonian biofluids in a non-uniformly charged wavy microchannel:Effect of finite ion size, *Electrophoresis* 42(2021) 2498-2510. https://doi.org/10.1002/elps.202000225 *Impact Factor: 3.535, Q2, SCIE/SCI*
11. **S.K. Mehta**, S. Pati, S. Ahmed, P. Bhattacharyya , J. J. Bordoloi, Analysis of thermo-hydraulic and entropy generation characteristics for flow through ribbed-wavy channel, *International Journal of Numerical Methods for Heat & Fluid Flow*, (2021), https://doi.org/10.1108/HFF-01-2021-0056 *Impact Factor: 4.17, Q1, SCIE/SCI*
12. **S.K. Mehta**, S. Pati, Thermo-hydraulic and entropy generation analysis for magnetohydrodynamic pressure driven flow of nanofluid through an asymmetric wavy channel, *International Journal of Numerical Methods for Heat & Fluid Flow*, 31 (4), 1190-

1213 (2021). https://doi.org/10.1108/HFF-05-2020-0300 *Impact Factor: 4.17, Q1, SCIE/SCI*

13. **S.K. Mehta**, S. Pati, Numerical study of thermo-hydraulic characteristics for forced convective flow through wavy channel at different Prandtl numbers, *Journal of Thermal Analysis and Calorimetry*, 141, 2429–2451 (2020). https://doi.org/10.1007/s10973-020-09412-5 *Impact Factor: 4.626, Q2, SCIE/SCI*
14. **S.K. Mehta**, S. Pati, Analysis of thermo-hydraulic performance and entropy generation characteristics for laminar flow through triangular corrugated channel, *Journal of Thermal Analysis and Calorimetry*, 136, 49–62 (2019). https://doi.org/10.1007/s10973-018-7969-1 *Impact Factor: 4.626, Q2, SCIE/SCI*
15. B. Mondal, **S. K. Mehta**, P. K. Patowari, S. Pati, Numerical study of mixing in wavy micromixers: comparison between raccoon and serpentine mixer, *Chemical Engineering and Processing-Process Intensification*, 136, 44-61 (2019). https://doi.org/10.1016/j.cep.2018.12.011 *Impact Factor: 4.237, Q1, SCIE/SCI*
16. S. Pati, **S.K. Mehta**, Numerical investigation of thermo-hydraulic transport characteristics in wavy channels: Comparison between raccoon and serpentine channels, *International Communications in Heat and Mass Transfer*, 88, 171-176 (2017). https://doi.org/10.1016/j.icheatmasstransfer.2017.09.001 *Impact Factor: 5.683, Q1, SCIE/SCI*

Note: *Other six papers are communicated and in the middle of the process of "under review" in the reputed international journals.*

Book chapters (five under SCOPUS indexing)

1. **S.K. Mehta**, S. Pati, Effect of Non-uniform Heating on Forced Convective Flow Through Asymmetric Wavy Channel. In: Pandey K., Misra R., Patowari P., Dixit U. (eds) Recent Advances in Mechanical Engineering. Lecture Notes in Mechanical Engineering. Springer, Singapore, (2021). https://doi.org/10.1007/978-981-15-7711-6_34, SCOPUS
2. T. Sujith, **S.K. Mehta**, S. Pati, Effect of non-uniform heating on electroosmotic flow through microchannel, Recent Adv. Mechanical Eng. Springer. Singapore. 499–508 (2021). https://doi.org/10.1007/978-981-15-7711-6_50, SCOPUS
3. **S.K. Mehta**, S. Pati, Thermo-Hydraulic Performance for an Electronic Cooling System Using Porous Material. In: Pawar P.M., Balasubramaniam R., Ronge B.P., Salunkhe S.B., Vibhute A.S., Melinamath B. (eds) Techno-Societal 2020. Springer, Cham. (2021). https://doi.org/10.1007/978-3-030-69925-3_20, SCOPUS
4. **S.K. Mehta**, S. Pati, Analysis of Heat Transfer and Pressure Drop for Pressure Driven Flow of Non-Newtonian Fluids Through a Serpentine Channel: Influence of Prandtl Number. In: Pawar P.M., Balasubramaniam R., Ronge B.P., Salunkhe S.B., Vibhute A.S., Melinamath B. (eds) Techno-Societal 2020. Springer, Cham. (2021). https://doi.org/10.1007/978-3-030-69925-3_92, SCOPUS
5. S. Pabi, **S.K. Mehta,** S. Pati, Effect of slip on vortex formation near two-part cylinder with same sign zeta potential in a plane microchannel, Techno-Societal 2020 Springer Cham (2021) 1013-1022. https://doi.org/10.1007/978-3-030-69921-5_101, SCOPUS

6. **S.K. Mehta**, S. Pati, Numerical study of electroosmotic flow over a hydrophobic wavy plate, Advances in Mechanical Engineering Select Proceedings of ICTEMA2022, NOLEGEIN, an imprint of Consortium E-Learning, Network Pvt. Ltd., ISBN: 978-81-952903-6-9, 1st edition (2022).

International conferences (two under SCOPUS indexing**)**

1. **S.K. Mehta**, S. Pati, Effect on non-uniform heating on heat transfer characteristics in wavy channel, *Proceedings of the 5th international conference on computational methods for thermal problems, IISc Bangalore, India*. 5:498-501 (2018). SCOPUS
2. T. Debnath, **S. K. Mehta**, P.K. Patowari, Performance analysis of an array of square micro-fins, *IOP Conference Series: Materials Science and Engineering*, 377, 012056 (2018). https://doi.org/10.1088/1757-899X/377/1/012056, SCOPUS
3. **S.K. Mehta**, S. Pati, Thermo-Hydraulic Analysis for Flow through Triangular Corrugated Channel, *International Conference on Thermal Analysis and Energy Systems , Hindusthan College of Engineering and Technology*, Coimbatore- Pollachi Road, Coimbatore – 641032. India (2018).
4. **S.K. Mehta**, A. Kumar, S. Pati, Numerical analysis of thermo-hydraulic transport characteristics in wavy channel with porous wavy slab, *Proceedings of the 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP) December 10-12, 2018, IIT Bombay, Mumbai, India* (2018).
5. **S.K. Mehta**, S. Pati, Thermo-hydraulic analysis for forced convective flow through partially filled metallic porous wavy channel considering dispersion effect, *IHMTC-2019, IIT Roorkee, India* (2018).
6. **S.K. Mehta**, S. Pati, Numerical study of thermo-hydraulic characteristics for forced convective flow through wavy channel at different Prandtl number, *Proceedings of IMEC 2019, International Mechanical Engineering Congress (IMEC-2019), 29 th November- 1 st December 2019, NIT Tiruchirappalli, India* (2019).
7. D. K. Deka, **S.K. Mehta**, S. Pati, Natural convection heat transfer in a differentially Heated cavity with porous obstacle, *IHMTC-2019, IIT Roorkee, India* (2019).
8. **S.K. Mehta**, S. Pati, Effect of non-uniform heating on forces convective flow through asymmetric wavy channel. International Conference on Recent Developments in Mechanical Engineering, *ICRAME 2020, NIT Silchar, India* (2020).
9. **S.K. Mehta**, S. Pati, Thermo-hydraulic characteristics for MHD forced convective flow through raccoon channel, *International Conference on Energy and Sustainable Develeopment Jointly organized by Jadavpur University and The Institution of Engineers, India February 14-15*, (2020).
10. T. Sujith, **S.K. Mehta**, S. Pati, Effect of non-uniform heating on electroosmotic flow through microchannel, *International Conference on Recent Developments in Mechanical Engineering, ICRAME 2020, NIT Silchar, India* (2020).
11. **S.K. Mehta**, S. Pati, Thermo-Hydraulic Performance for an Electronic Cooling System Using Porous Material. *Techno-Societal 2020: 3rd International Conference on Advanced*

Technologies for Societal Applications, SVERIs College Of Engineering Pandharpur, Pandhapur, India, December 11-12, 2020

12. **S.K. Mehta**, S. Pati, Analysis of Heat Transfer and Pressure Drop for Pressure Driven Flow of Non-Newtonian Fluids Through a Serpentine Channel: Influence of Prandtl Number. *Techno-Societal 2020: 3rd International Conference on Advanced Technologies for Societal Applications, SVERIs College Of Engineering Pandharpur, Pandhapur, India, December 11-12*, 2020
13. A. Kumar, **S. K. Mehta,** S. Pati, Hydrodynamic and thermal transport characteristics for forced convective flow through a wavy channel with a linearly varying amplitude at the entrance region, *International Conference on Thermal Analysis and Energy Systems (ICTAES-2021), Heat pump research institute, Pollachi, Coimbatore, India and Al-Farabi Kazakh National University, Almaty, Republic of Kazakhstan. 050040* (2021).
14. **S. K. Mehta,** S. Pati, Numerical study of electroosmotic flow over a hydrophobic wavy plate, *International Conference on Thermal Engineering and Management Advances (ICTEMA 2022), Jalpaiguri Government Engineering College, West Bengal, India* (2022).

Summary of publication

Web of science: Publications: 22,
Source: https://publons.com/researcher/3754818/sumit-kumar-mehta/
SCOPUS Publication: Documents by author: 18
Source: https://www.scopus.com/authid/detail.uri?authorId=57203276466
Google Scholar: Document: 26
Source: https://scholar.google.co.in/citations?user=Rk-6RA0AAAAJ&hl=en

Citation

1. Scopus

Documents by author: 18, Citation by 130 documents: 211, h-index:7
Source: https://www.scopus.com/authid/detail.uri?authorId=57203276466

2. Web of science

Publications: 22, Total time cited: 172, h-index:7
Source: https://publons.com/researcher/3754818/sumit-kumar-mehta/

3. Google scholar

Total publications: 26, Number of citation: 291, h-index:8, i-10 index: 8
Source: https://scholar.google.co.in/citations?user=Rk-6RA0AAAAJ&hl=en

Verified review

Total verified review: 9

1. International Journal of Numerical Methods for Heat & Fluid Flow
2. SN Applied Sciences
3. Scientific Reports
4. Case Studies in Thermal Engineering

5. Thermal Science and Engineering Progress

Source: https://publons.com/researcher/3754818/sumit-kumar-mehta/

Speaker in Worksop

- Contributed as a speaker towards the success of the online 5 day FDP (Faculty Development Programme) on REVISITING CFD OPEN FOAM, COMSOL, LBM AND MATLAB jointly organized by Department of Mechanical Engineering, Pandit Deendayal Energy University, Gandhinagar, Gujarat and GMR Institute of Technology, Rajam Andhra Pradesh

Reference

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   Department of Mechanical Engineering
   Indian Institute of Technology Guwahati, Assam, India
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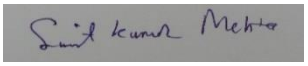
Expected date of Graduation/Joining if offered

Expected date of joining if offered: 02/05/2022

I hereby solemnly declare that all the information given above is true and correct to the best of my knowledge and belief.



signature