

Dr. Jyoti Sharma

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Academic Background

- Ph.D. from Panjab University, Chandigarh, India in the year 2017.
Topic: *Double-Diffusive Convection in Nanofluids: Analytical & Computational Studies*
- UGC-NET (Dec-2007)
- M.Sc. (Hons School) from Department of Mathematics, Panjab University, Chandigarh, India in the year 2004.
- B.Sc. (Hons School) from Department of Mathematics, Panjab University, Chandigarh, India in the year 2002.

Teaching Experience: 18 years

Research Publications: 28

Achievement: Research award of the year 2017 for publication “Modified Model for Binary Nanofluid Convection with Initial Constant Nanoparticle Volume Fraction”, Journal of Applied Fluid Mechanics, 10 (5) 1387-1395 (2017) awarded by U.I.E.T., Panjab University, Chandigarh (5.5.2018).

• **M. Tech (Material Science and Technology) students guided:**

1. Name: Rajesh kumar (Roll No. 17-208)

Title of Thesis: Rayleigh Bénard Cell Formation of Green Synthesised Nano-Particles of Silver and Selenium

2. Name: Manveer Singh Rai (Roll. No.18-202)

Title of Thesis: Effect of Nanoparticles on Rayleigh-Bénard Convection: An Analytical and Numerical study

3. Name: Pankaj Kumar (Roll No. 19-202)

Title of Thesis: Natural Convection in a Horizontal Nanofluid Layer of Finite Depth

Invited Talks:

- **Delivered a talk** on ‘A detailed analyses on factors affecting sensitivity of nanofluids and in the International Conference on Recent Trends in Materials Science and Devices (2023) (ICRTMD 2023) 22-23 July, **2023** Jointly Organized by Research Plateau Publishers (An Academic Publisher of Scientific & Technical Journals, Jhajjar, Haryana, India) & G.A.V. Degree College, Patauda (Jhajjar).
- **Delivered a talk** on ‘Impact of Thermo-physical Properties on Convective Instability of Nanoliquids’ and **Chaired Paper Presentation Session** in the International Conference on Differential Equations and Control Problems – Modeling, Analysis and Computations (ICDECP23) organized by IIT Mandi, H.P., India from 15-17 June, **2023**.
- **Delivered a talk** on “A Comparative Study of Natural Nanofluid Convection for Different Initial and Boundary Conditions” and **Chaired Paper Presentation Session** in the International Conference on Differential Equations and Control Problems – Modeling, Analysis and Computations (ICDECP19) organized by IIT Mandi, H.P., India from 17-19 June, **2019**.
- **Reviewer for Journals:**
 1. [Journal of Advanced Research in Fluid Mechanics and Thermal Sciences](#) (Scopus indexed) (July **2023**)
 2. [Numerical Heat Transfer, Part B: Fundamentals](#) (July **2023**) Impact factor 1.1, (SCI indexed).
 3. [Journal of Heat and Mass Transfer Research](#), Manuscript ID: JHMTR-2303-1432 (June **2023**)
 4. [CFD Letters](#), Journal homepage: www.akademiabaru.com/cfdl.html (Scopus indexed) ISSN: 2180-1363 (May **2023**).
 5. [Meccanica](#), Journal homepage: <https://www.springer.com/journal/11012>, Impact factor: 2.538, (SCI & SCOPUS indexed), Electronic ISSN 1572-9648, Print ISSN 0025-6455. (**2022**)

6. Nanomaterials and Nanotechnology, journal homepage
<https://journals.sagepub.com/home/nax> Impact factor 3.116, (SCI & SCOPUS indexed) ISSN: 1847-9804, Online ISSN: 1847-9804, (2022).
7. CFD Letters, Journal homepage: www.akademiabaru.com/cfdl.html (Scopus indexed) ISSN: 2180-1363 (2021).
8. World Review of Entrepreneurship, Management and Sustainable Development (WREMSD) (Scopus indexed) ISSN online 1746-0581 ISSN Print 1746-0573 (2020).
9. International Journal of Mathematical, Engineering and Management Sciences (Scopus indexed) ISSN: 2455-7749 (2019).

- **Reviewer for Proceedings of International Conferences/Member of Scientific Committee:**

1. The 4th International Conference on Frontiers in Industrial and Applied Mathematics FIAM-2021
2. International Conference on Integrated Interdisciplinary Innovations in Engineering ICIIE 2020.
3. International Conference on Efficient Engineering Systems 2020 ICEES 2020.

- **Organizing Secretary** of one-day online seminar on “Emerging Trends in Applied Mathematics” on 27th Feb, 2021 (Saturday) at UIET, Panjab University, Chandigarh.

List of Publications

Papers in Journals

1. **J. Sharma**, N. A. Ahammad, A. Wakif, N. A. Shah, J. D. Chung, W. Weera, Solutal effects on thermal sensitivity of Casson nanofluids with comparative investigations on Newtonian (water) and non-Newtonian (blood) base liquids. (SCI indexed), Alex. Eng. J. 71, 387–400 (2023). Online ISSN: 2090-2670, Print ISSN: 1110-0168 Impact Factor: 6.8.

2. M. Devi, U. Gupta, **J. Sharma**, Casson nanofluid instability with viscosity and conductivity variation using Brinkman model, J. Nanofluids (**Scopus** indexed), 12, (2023) 1–13. ISBN: 1-58883-2120.
3. **J. Sharma**, A Wakif, Comprehensive analyses of probable influencing factors responsible for the onset of convective instabilities in various viscous fluidic media involving metallic/non-metallic nanoparticles, Waves in Random and Complex Media (**SCI**, Scopus indexed), (2022) 1–20. doi:10.1080/17455030.2022.2117878. **Impact factor: 4.853.**
4. M. Devi, U. Gupta, **J. Sharma**, M. Devi, Casson nanofluid instability with viscosity and conductivity variation using Brinkman model, Journal of Nanofluids (Scopus indexed), (2022) (Accepted)
5. M. Devi, **J. Sharma**, U. Gupta, Effect of internal heat source on Darcy-Brinkman convection in a non-Newtonian Casson nanofluid layer, Journal of Porous Media (**SCI**, Scopus indexed), 25, 1-19(2022), **Impact factor: 1.752** Electronic ISSN: 1934-0508, Print ISSN: 1934-028X. DOI: [10.1615/JPorMedia.2022039506](https://doi.org/10.1615/JPorMedia.2022039506)
6. U. Gupta, **J. Sharma**, M. Devi, Double-diffusive instability of Casson nanofluids with numerical investigations for blood-based fluid, The European Physical Journal Special Topics (**SCI**, SCOPUS indexed), 230, 1435–1445 (2021) **Impact Factor: 2.282.** Electronic ISSN: 1951-6401 Print ISSN 1951-6355. DOI: <https://doi.org/10.1140/epjs/s11734-021-00053-9>.
7. **J. Sharma**, U. Gupta, V. Sharma, Modified Model for Binary Nanofluid Convection with Initial Constant Nanoparticle Volume Fraction, Journal of Applied Fluid Mechanics (**SCI**, SCOPUS indexed), 10 (5) 1387-1395 (2017) ISSN 1735-3572, EISSN 1735-3645, **Impact Factor: 1.405.** DOI: [10.18869/acadpub.jafm.73.242.27754](https://doi.org/10.18869/acadpub.jafm.73.242.27754) (Pub. Regional information center for science and technology).
8. **J. Sharma**, U. Gupta , R. K. Wanchoo, Magneto binary nanofluid convection in porous medium, International Journal of Chemical Engineering (Hindawi) (SCOPUS indexed), Volume 2016 , Article ID 9424036, 8 pages (2016). (**SCI**, SCOPUS indexed) ISSN: 1687-806X (Print) ISSN: 1687-8078 (Online) **Impact Factor: 2.257.** DOI <https://doi.org/10.1155/2016/9424036>.

9. U. Gupta, **J. Sharma**, V. Sharma, Instability of binary nanofluid with magnetic field, Applied Mathematics and Mechanics (**SCI**, SCOPUS indexed) (Springer) 36 (6) 693-706 (**2015**). Electronic ISSN 1573-2754 Print ISSN 0253-4827, **Impact Factor: 2.866**.
10. **J. Sharma**, U. Gupta, S. Shukla, A Revised Model for Magneto Convection in Binary Nanofluids, International Journal of Mathematical, Engineering and Management Sciences (SCOPUS indexed) 4 (1), 131–138 (**2019**) ISSN: 2455-7749.
11. **J. Sharma**, U. Gupta, R. K. Wanchoo, Numerical Study on Binary Nanofluid Convection in a Rotating Porous Layer, Differ Equ Dyn Syst (SCOPUS indexed) (Springer), 25(2):239–249 DOI 10.1007/s12591-015-0268-4, (**2016**). Electronic ISSN 0974-6870 Print ISSN 0971-3514.
12. J. Ahuja, **J. Sharma**, U. Gupta, R.K. Wanchoo, Hydromagnetic Stability of a Nanofluid Layer Using Darcy-Brinkman Model, Journal of nanofluids (SCOPUS indexed) (American Scientific Pub.) 5(3) 436-443 (**2016**). ISSN: 2169-432X (Print) EISSN: 2169-4338 (Online)
13. **J. Sharma**, U. Gupta, Double-diffusive nanofluid convection in porous medium with rotation: Darcy-Brinkman model, Procedia Engineering (SCOPUS indexed) (Elsevier), 127C 783-790 (**2015**). ISSN: 1877-7058.
14. J. Ahuja, **J. Sharma**, Rayleigh–Bénard instability in nanofluids: a comprehensive review, Micro and Nano Systems Letters, 8 (1), 1-15 (**2020**). <https://doi.org/10.1186/s40486-020-00123-y> ISSN: 2213-9621 (electronic) (Emerging Sources Citation Indexed).
15. **J. Sharma**, U. Gupta, Binary nanofluid convection for Darcy-Brinkman model in hydromagnetics, Research Journal of Science and Technology, 9 (1), 93-100 (**2017**). Print ISSN : 0975-4393. Online ISSN : 2349-2988.
16. **J. Sharma**, U. Gupta, Binary nanofluid convection subjected to rotation, International Journal of Electrical, Electronics and Mechanical Fundamentals (IJEEMF). ISSN (Online): 2278-3989 (**2017**).
17. **J. Sharma**, U. Gupta, R. K. Wanchoo, J. Ahuja, An analytical and numerical study for thermosolutal nanofluid convection using revised model, Perspectives in Science

(Elsevier), (2016), DOI:10.1016/j.pisc.2016.05.006. [Volume 8](#), September (2016), Pages 495-497. ISSN: 2213-0209.

Conference Proceedings

- 18.** M. Devi, **J. Sharma**, U. Gupta, Instability in Casson nanofluids for Darcy-Brinkman model, IOP Conf. Ser.: Mater. Sci. Eng. (SCOPUS indexed), 1225 (1), 012011 (2021). Online ISSN:1757-899X, Print ISSN: 1757-8981
- 19.** **J. Sharma** and M Singh, Effect of nanoparticles on natural convection in fluids, (2021) IOP Conf. Ser.: Mater. Sci. Eng. (SCOPUS indexed) 1033 (1), 012054. Online ISSN:1757-899X, Print ISSN: 1757-8981
- 20.** R. Kumar, **J. Sharma**, J. Sood, Rayleigh-Bénard cell formation of green synthesized nano-particles of silver and selenium, Materials Today: Proceedings,(2020), Volume 28, Part 3, 2020, Pages 1781-1787, ISSN 2214-7853, (SCOPUS indexed) <https://doi.org/10.1016/j.matpr.2020.05.191>.
- 21.** U. Gupta, **J. Sharma**, Mamta Devi, Casson nanofluid convection in an internally heated layer, Materials Today: Proceedings, Volume 28, Part 3, (2020), Pages 1748-1752, ISSN 2214-7853, (SCOPUS indexed) <https://doi.org/10.1016/j.matpr.2020.05.156>.
- 22.** **J. Sharma**, U. Gupta, Nanofluid convection under Hall currents and LTNE effects, Materials Today: Proceedings, Volume 26, Part 3, 2019, Pages 3369-3377, ISSN 2214-7853, (2019) (SCOPUS indexed) <https://doi.org/10.1016/j.matpr.2019.10.149>

Book Chapters

- 23.** **J. Sharma**, Application of Differential Equations to Instability of Nanofluids, Differential Equations in Engineering: Research and Applications (1st ed.), (2021), 95-106 CRC Press, eBook 8th September 2021 Edited by: Nupur Goyal, Piotr Kulczycki, Mangey Ram ISBN: 9781003105145, <https://doi.org/10.1201/9781003105145>.
- 24.** **J. Sharma**, U. Gupta, Convection Currents in Nanofluids under Small Temperature Gradient, Applications of Nanobiotechnology, IntechOpen , (2019), 8th July 2020 Edited by: Margarita Stoytcheva ISBN: 978-1-78985-978-2, Print ISBN: 978-1-78985-

977-5, eBook (PDF) ISBN: 978-1-83880-997-3, DOI:
<http://dx.doi.org/10.5772/intechopen.88887>.

- 25. J. Sharma**, U. Gupta, Instability of a rotating binary nanofluid layer: Darcy model, Recent Advances in Engineering and Computation Sciences, IEEE, Chandigarh, India (2015) 19 April 2016 (SCOPUS indexed) Print ISBN: 978-1-4673-8253-3.
- 26. U. Gupta, J. Sharma**, R.K. Wanchoo, Effect of magnetic field on top heavy binary nanofluid layer in porous medium, Nanotechnology: Novel Prospects and Perspectives, Bhupinder Singh, Anupama Kaushik, S K Mehta, S K Tripathi. (McGraw-Hill, U.S.A), (2015), 353-360 ISBN: 13: 978-93-39221-09-6.
- 27. U. Gupta, J. Sharma**, R. K. Wanchoo, Thermosolutal convection in a horizontal nanofluid layer: Introduction of oscillatory motions, Recent Advances in Engineering and Computation Sciences, IEEE, Chandigarh, India (SCOPUS indexed) (2014) 17 April 2014 Print ISBN: 978-1-4799-2290-1.
- 28. U. Gupta, J. Sharma**, Double diffusive convection in a horizontal nanofluid layer with vertical magnetic field, International conference on Information and Mathematical Sciences, 24-26 Oct., (2013) (Elsevier) ISBN: 9789351071624.

Papers Presented in Conferences

- 1.** The effect of magnetic field on the convection of binary nanofluid layer, Workshop on Mathematical Modeling and Computational Techniques, 27-28 Sept., 2013, U.I.E.T., P.U., Chandigarh (National)
- 2.** Double diffusive convection in a horizontal nanofluid layer with vertical magnetic field, International conference on Information and Mathematical Sciences, 24-26 Oct., 2013, Baba Farid College of Engg. & Tech., Bathinda. (International)
- 3.** Effect of magnetic field on top heavy binary nanofluid layer in porous medium, International conference on Nanotechnology in service of Health, Environment and Society, 13-15 Feb., 2014, Panjab University, Chandigarh.(International).
- 4.** Thermosolutal convection in a nanofluid layer in porous medium, 8th Chandigarh Science Congress, 26-28 Feb., 2014, Panjab University, Chandigarh.(State)

5. Thermosolutal convection in a nanofluid layer: Introduction of oscillatory motions, International conference on Recent Advances in Engg. and Computational Sciences, 6-8 March, **2014**, U.I.E.T., P.U., Chandigarh (International)
6. Thermosolutal convection in a rotating nanofluid layer in porous medium, International conference on Emerging areas of Mathematics for Science & Technology, 30 Jan-1 Feb., **2015**, Dept. of Mathematics, Punjabi University, Patiala (International)
7. Binary nanofluid convection under vertical magnetic field in porous medium, National Seminar on Sustainable renewable energy generation-current scenario, 21 March, **2015**, Energy Research Centre, P.U., Chandigarh. (National)
8. Effect of rotation on thermosolutal nanofluid convection in porous medium, 2nd National conference on Advanced Oxidation Processes, 15-16 Oct, **2015**, Dr. S.S.B.UICET & Energy Research Centre, P.U., Chandigarh. (National)
9. Instability of a Rotating Binary Nanofluid Layer: Darcy Model, Recent Advances in Engineering and Computational, 21-22, Dec **2015**, U.I.E.T., P.U., Chandigarh (International)
10. Onset of Magneto-Convection Saturating a Porous Medium for a binary Nanofluid Layer, One day National seminar on Fascination of light and photonics for life, 22 Jan , **2016**, G.C.G., Sector 11, Chandigarh (National)
11. Binary nanofluid convection for Darcy-Brinkman model in hydromagnetics, National conference on Advances in Mathematics, 21-22 December **2016**, Department of Mathematics, Netaji Subhash Chander Bose Memorial Government College, Hamirpur, Himachal Pradesh (National).
12. Binary nanofluid convection subjected to rotation, International Conference on Interdisciplinary Research for Sustainable Development (IRSD-2017), 6-7 November **2017**, NITTTR Chandigarh. (International).
13. A revised model for magneto convection in binary nanofluids, International Conference on Responsible Research and Innovation in Science, Management and Education (ICRRIMSE-2018) 4- 6 April **2018**, Panjab University, Chandigarh. (International)

14. Rayleigh-Bénard cell formation of green synthesized nano-particles of silver and selenium in ICAMSE 2020 (International Conference on Aspects of Materials Science and Engineering) held at Panjab University during 29th – 30th May 2020.
15. Effect of Nanoparticles on Natural Convection in Fluids in the conference “ICIIE-2020” International Conference on Integrated Interdisciplinary Innovations in Engineering, 28th-30th August 2020 organized by UIET, Panjab University, Chandigarh.

Faculty Development Programs/ STC/online courses

1. Completed NPTEL Online 12 week course on ‘Advanced Fluid Mechanics’ Sep-Dec **2020**, IIT, Kharagpur.
2. One week online short-term training program on "Computational Fluid Dynamics" from 17th-22nd August **2020** organized by NIT Srinagar.
3. Faculty Development Program On “Exploring Science and Technology Interconnections” from 3rd-8th August, **2020** organized by UIET, Panjab University, Chandigarh.
4. TEQIP sponsored faculty development program on “Effective Teaching”, 9-14 January, **2017**.
5. TEQIP sponsored faculty development program on “Role of basic sciences in engineering”, 11-16 Nov., **2013**.
6. TEQIP sponsored faculty development program on “Achieving excellence in technical education”, 16-19 July, **2013**.
7. TEQIP sponsored faculty development program on “Teaching and soft skills”, 26-29 December, **2012**.
8. Summer school on “Effective curriculum implementation” conducted by N.I.T.T.R., Chandigarh, 14-18 Sept., **2009**.
9. Winter school on “Strategic management for excellence” conducted by N.I.T.T.R., Chandigarh, 19-23 Jan, **2009**.

Other Activities

1. Worked as a Team Member in Induction Programmes in the years 2018 and 2021.

2. Attended Two day conference on Mathematics Feb 13-14, 2020 organized by Department of Mathematics, Panjab University, Chandigarh
3. Worked as Volunteer in 91st Indian Science Congress at Panjab University January 3-7, 2004.
4. Participated and won prizes in various competitions at School level.