

Curriculum Vitae

Name: Dr. Madhusree Kole

Address: House No 703, Type II Apartment, IIT Kanpur Campus,
Kalyanpur, Kanpur, Uttar Pradesh, PIN 208016.

Date of Birth: 24-03-1984

Category: General

Gender: Female

Nationality: Indian

Marital Status: Married

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Qualification: Ph.D, Post Doctorate



Qualifications Summary (Reverse chronological order):

Degree	Institute/University	From - To	Subjects	Percentage obtained
Post Doctorate	Dept. of Mechanical Engineering, IIT Kanpur, Kanpur, Uttar Pradesh	2 nd Dec. 2019 to till date	Heat transfer of air-ferrofluid two-phase flow for electronics thermal management	NA
Ph.D	Cryogenic Engineering Centre, IIT Kharagpur, Kharagpur, West Bengal	2008-2013	Thermophysical Properties, Pool Boiling Characteristics, and Heat Pipe Application of Nanofluids	NA
M.Sc	Visva Bharati University, Santiniketan, West Bengal	2006-2008	Physics (Special Paper: Condensed Matter Physics)	77.2%
B.Sc	Visva Bharati University, Santiniketan, West Bengal	2003-2006	Physics (Hons.) Subsidiary: Mathematics and Chemistry	75.2%
Higher Secondary (WBCHSE)	Bidhan Chandra Institution for Girls', Durgapur, West Bengal	2003	Beng., Eng., Physics, Chemistry, Mathematics, and Biology	80.5%
10 th (ICSE)	Carmel Convent High School, MAMC, Durgapur, West Bengal	2001	Eng., Beng., Maths, Sciences, Hist. & Geography, and Economics	90.7%

Specialization/Research Interest:

Condensed Matter Physics, Thermophysical Properties, Nanofluids, Heat Transfer, Ferrofluids.

Teaching Experience Summary (In chronological order):

Sl. No.	Designation	Organization	From	To
1.	Assistant Professor of Physics in the Department of Basic Science & Humanities	Dr. B.C. Roy Engineering College, Durgapur affiliated to MAKAUT, West Bengal and approved by AICTE	02/07/2013	Till date (Presently on study leave from 01/12/2019 for a period of two years).

Awards/Achievements/Recognitions/Fellowships:

Achievement: Ranked within **top 2% Global Scientist/Researchers** in the world.

The article by a famous analyst group of Stanford University led by Dr John Ioannidis and published very recently in the journal of PLOS Biology has ranked top scientists inclusive from various disciplines worldwide by normalizing all publication data across fields, which is inclusive of the top 2 per cent of scientists of their respective main subfield disciplines up to 2019.

Enlisted in **Global AD (Alper-Doger) Scientific Index 2021** list.

Awards: Thermophysical Society of India Founder President **Gold Medal Award 2009** and **2011**.

Qualified: GATE 2007.

Fellowships: DST sponsored JRF & SRF, IIT Kharagpur Institute SRF, CSIR SRF, IIT Kanpur Institute Post-Doctoral Fellowship.

Recognized Reviewer of several Elsevier Journals like ENERGY, Powder Technology, International journal of Thermal Sciences, etc.

Invited Keynote Talk:

1. **Dr. Madhusree Kole**, 'Nanofluids: Prospects and Challenges in Thermo-fluid Engineering', International Symposium on Fluids and Thermal Engineering, organized by the Department of Mechanical Engineering, Amity School of Engineering & Technology, Amity university, Noida, Uttar Pradesh, India, on 22nd July, 2021.

Participation in Faculty Development Programmes:

1. One-week Online FDP under **AICTE Training And Learning (ATAL) Academy** on "Green Technology & Sustainability Engineering" organized by Netaji Subhas University of Technology from Oct. 5th- Oct. 9th, 2020.

Publications:

Publications in International Journals:

1. **Madhusree Kole** and T. K. Dey, Viscosity of alumina nanoparticles dispersed in car engine coolant, *Experimental Thermal and Fluid Science*, 34, 677-683 (2010). ([268 Citations](#)).
2. **Madhusree Kole** and T. K. Dey, Effect of aggregation on the viscosity of copper oxide-gear oil nanofluids, *International Journal of Thermal Sciences*, 50, 1741-1747 (2011). ([248 Citations](#)).
3. **Madhusree Kole** and T. K. Dey, Investigation of thermal conductivity, viscosity, and electrical conductivity of graphene based nanofluids, *Journal of Applied Physics*, 113, 084307 (2013). ([220 Citations](#)).
4. **Madhusree Kole** and T. K. Dey, Thermal conductivity and viscosity of Al₂O₃ nanofluid based on car engine coolant, *Journal of Physics D: Applied Physics*, 43, 315501-10 (2010). ([189 Citations](#)).
5. **Madhusree Kole** and T. K. Dey, Thermal performance of screen mesh wick heat pipes using the water-based copper nanofluids, *Applied Thermal Engineering*, 50, 763-770 (2013). ([145 Citations](#)).
6. **Madhusree Kole** and T. K. Dey, Effect of prolonged ultrasonication on the thermal conductivity of ZnO-ethylene glycol nanofluids, *Thermochimica Acta*, 535, 58-65 (2012). ([109 Citations](#)).
7. **Madhusree Kole** and T. K. Dey, Investigations on the pool boiling heat transfer and critical heat flux of ZnO-ethylene glycol nanofluids, *Applied Thermal Engineering*, 37, 112-119 (2012). ([100 Citations](#)).
8. **Madhusree Kole** and T. K. Dey, Thermophysical and pool boiling characteristics of ZnO-ethylene glycol nanofluids, *International Journal of Thermal Sciences*, 62, 61-70 (2012). ([98 Citations](#)).
9. **Madhusree Kole** and T. K. Dey, Role of interfacial layer and clustering on the effective thermal conductivity of CuO-gear oil nanofluids, *Experimental Thermal and Fluid Science*, 35, 1490-1495 (2011). ([95 Citations](#)).
10. **Madhusree Kole** and T. K. Dey, Enhanced thermophysical properties of copper nanoparticles dispersed in gear oil, *Applied Thermal Engineering*, 56, 45-53 (2013). ([88 Citations](#)).
11. **Madhusree Kole** and T. K. Dey, Pool boiling heat transfer and critical heat flux enhancement of copper nanoparticles dispersed in distilled water, *Journal of Nanofluids*, 3, 85-96 (2014). ([7 Citations](#)).
12. R. S. Bhoopal, D. Tripathi, **Madhusree Kole**, T. K. Dey, and Ramvir Singh, "Experimental and numerical investigations on the effective thermal conductivity of low-density polyethylene filled with Ni and NiO particles", *Composites: Mechanics, Computations, Applications, An International Journal*, 3, pp. 79-93 (2012). ([4 Citations](#))

13. S.K. Ghoshal and **Madhusree Kole**, "Some Simple Applications of the Concept of Superacceleration in the Field of Classical Mechanics", *Journal of Applied Physical Science International*, 2 (3), pp. 107-110 (2015).
14. S.K. Ghoshal and **Madhusree Kole**, "Exploring the intricacies of hidden correlations of power with kinetic energy, frequency, and temperature", *Journal of Basic and Applied Research International*, 11 (2), pp. 80-86 (2015).
15. S.K. Ghoshal and **Madhusree Kole**, "On the possibility of constructing devices capable of extracting energy from the forces of nature", *International Journal of Engineering and Applied Sciences*, 3 (3), pp. 90-95 (2016).
16. **Madhusree Kole** and Sameer Khandekar, "Engineering Applications of Ferrofluids: A Review", *Journal of Magnetism and Magnetic Materials*, 537, 168222 (2021). (2 Citations)

Publications in National Journals:

1. Sanjib Baglari, **Madhusree Kole**, and T. K. Dey, "Effective Thermal Conductivity and Coefficient of Linear Thermal Expansion of HDPE/Fly Ash Composites", *Indian Journal of Physics*, (2011), 85, pp. 559-573. (25 Citations)
2. **Madhusree Kole**, Dinesh Tripathi, and T. K. Dey, "Percolation based enhancement in the effective thermal conductivity of HDPE/LBSMO composites", *Bulletin of Material Sciences*, (2012), 35, pp. 601-609. (9 Citations)

Please visit my *Google Scholar* page for updated list:

<https://scholar.google.co.in/citations?user=tkoJdKsAAAAJ&hl=en>

Conference publications:

1. **Madhusree Kole**, T. K. Dey, 'Experimental investigation on thermal conductivity and viscosity of engine coolant based alumina nanofluids', National Conference on Thermo Physical Properties, NCTP-09, October 7th-9th, 2009, Published in American Institute of Physics Conference Proceedings 1249, 120-124 (2010). (12 Citations)
2. **Madhusree Kole**, Sanjib Baglari and T. K. Dey, 'Effective Thermal Conductivity and Coefficient of Linear Thermal Expansion of HDPE/Fly Ash Composites', 9th Asian Thermophysical Properties Conference, October 19th-22nd, 2010, Beijing, China, Published in the Conference Proceedings, Paper No. 109049.
3. **Madhusree Kole**, Ram Krishna Shah, and Sameer Khandekar, 'Heat Transfer Augmentation of Air-Ferrofluid Taylor Bubble Flow in Presence of a Magnet', 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference, December 17-20, 2021, IIT Madras, Chennai-600036, Tamil Nadu, India, Accepted for publication in the Conference Proceedings, Paper 198.

Book Chapter:

1. S.K. Ghoshal and **Madhusree Kole**, 'Some Simple Applications of the Concept of Superacceleration in the Field of Classical Mechanics' in Theory and Applications of Physical Science, Vol. 1, Chapter 4, pp. 79-83 (Book Publisher International, 2019) Print ISBN: 978-93-89246-70-4, e-book ISBN 978-93- 89246-71-1.
2. **Madhusree Kole**, Tapas Kumar Dey, and Sameer Khandekar, 'Nanofluids: Prospects and Challenges in Thermo-fluid Engineering, Accepted to be published by Springer Nature.

Participation in seminar/conference/symposium/workshop/webinar:

1. **Oral Presentation**, Effective thermal conductivity and coefficient of linear thermal expansion of HDPE/LBSMO nanocomposites, **Madhusree Kole** and T. K. Dey National Conference on Condensed Matter Physics, NEHU, Sillong, March 21st-23rd, 2010.
2. **Oral Presentation**, Investigations on the enhanced thermal conductivity of nanoparticle-in gear oil dispersions as advanced energy-efficient coolants, **Madhusree Kole** and T. K. Dey, International Conference on Multifunctional Materials, ICMM-2010, BHU, Varanasi, U. P., December 7th -9th, 2010.
4. **Oral Presentation**, Suitability of alumina nanoparticles filled Polyvinylidene Fluoride nanocomposites for electronic packaging applications, **Madhusree Kole** and T. K. Dey, NCMCN-2011, University of Rajasthan, Jaipur, January 6th- 8th, 2011.
5. **Oral Presentation**, On the thermophysical properties and pool boiling characteristics of ZnO-ethylene glycol nanofluids as energy efficient coolants. **Madhusree Kole** and T. K. Dey. National Conference on Thermo Physical Properties, NCTP-11, BHU, Varanasi, U. P. October 11th-13th, 2011.
6. **Poster Presentation**, New observations on the thermophysical properties and pool boiling characteristics of ZnO-ethylene glycol nanofluids as energy efficient coolants. **Madhusree Kole** and T. K. Dey. International Conference on Theoretical and Applied Physics ICTAP-11, IIT Kharapur, W. B. December 1st-2nd, 2011.
7. **Oral Presentation**, Investigation of thermal conductivity, viscosity, and electrical conductivity of graphene based nanofluids. **Madhusree Kole** and T. K. Dey. Third National Seminar on Recent Trends in Condensed Matter Physics including Laser Application, TNSCMPLA-2013, University of Burdwan, W. B. March 5th-7th, 2013.
8. **Seminar participation**, "Teaching and Learning Skill Development" organized by IEEE Student Branch & IEI Student's Chapter, BCREC on August 22nd, 2019.
9. **Webinar participation**, "Trends of Modern Communication Engineering Systems" organized by ECE Department and IEEE Student Branch, BCREC on Sept. 18th-20th, 2020.
10. **Webinar participation**, "Trends in Nanotechnology", organized by Research and Development Cell, BCREC, on October 20th, 2020.
11. **Webinar participation**, "Journey from Vacuum Tube to Carbon Nanotube", organized by Research and Development Cell, BCREC, on February 27th, 2021.

12. **Oral Presentation**, Air-Ferrofluid Taylor Bubble Flow as Energy Efficient Coolant at Low Reynolds Number. **Madhusree Kole**, Ram Krishna Shah, and Sameer Khandekar. 7th Micro and Nano Flows Conference MNF 2021, Imperial College London, United Kingdom, May 24th-26th, 2021.

Teaching activities at IIT Kanpur:

1. Tutor (Section 03) for the Course Thermodynamics ESO201 A for second year, second semester B. Tech students from January 2020 to April 2020.
2. Assisted Prof A.K. Agarwal in the online tutorial classes (Section E5) of Thermodynamics ESO201 A for second year, first semester B. Tech students from September 2020 to November 2020.

Courses taught at Dr. B.C. Roy Engineering College:

B.Tech :

Theory Courses:

1. Engineering Physics I (Old Syllabus),
2. Engineering Physics II (Old Syllabus),
3. Engineering Physics I (New Syllabus),

Practical Courses:

1. Physics Laboratory I (Old Syllabus),
2. Physics Laboratory II (Old Syllabus),
3. Physics Laboratory I (New Syllabus).

Supervision of B.Tech Projects:

1. Supervised an **innovative project** entitled “**Smart Railway System**” carried out by six students of B. Tech (2016-2020) 3rd year of ECE Department. Students of the above-mentioned project have won the second prize in Innovative Model Presentation organized by Maulana Abul Kalam Azad University of Technology (MAKAUT) on the occasion of National Science Day held on 28th February 2019.
2. Supervised several inter-disciplinary projects of B.Tech 2nd year students under Humanities Paper code

Membership of professional bodies: IEEE, IETE, IEL, CSI, MGMI etc.

Life Member (L 057) of Thermophysical Society of India (TPSI)