

# National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

---

## Curriculum Vitae

### Dr Aditya Kumar



#### Brief Profile:

Dr Aditya Kumar is working as an Assistant Professor in the Department of Energy and Environment, NIT Trichy. He did one and a half years of postdoc research in the mechanical engineering department at IIT Bombay. He has worked in the versatile field of heat transfer and fluid mechanics, focusing on developing a non-intrusive technique for simultaneous measurement of the flow field and temperature distribution of the synthetic jet cooling of the heated plate. He was using a combination of advanced techniques, i.e., particle image velocimetry (PIV) and laser-induced phosphorescence thermometry, to measure the distribution. In the past, He has completed his PhD from the oldest institute in Asia at sustainable power and energy system lab, Department of Mechanical and Industrial Engineering, IIT Roorkee. There overall, he has worked on the synthesis, characterization, and application of magnetic nanofluids. His thesis mainly focuses on understanding the underlying physics behind the heat transfer characteristics of buoyancy-driven flow in an open cavity containing water-based fluids. Besides the thesis work, he has done the stability analysis of the nanofluids for the general application of the nanofluids. Simultaneously, he gained experience in teaching and training undergraduate and postgraduate students in coursework lab experiments. He received his Master's degree in Thermal Engineering from Indian Institute of Technology Roorkee in 2015. He is Experienced Researcher with a demonstrated history of working in the area related to heat transfer application of nanofluids from the last 5+ years. He published and contributed in the several leading international peer-reviewed journals. He attended and presented papers in the several national and international conferences on the various topic related to nanofluids. Currently, he is working on the natural convection heat transfer by the magnetic nanofluids. He is also involved in designing and performing several experiments on the force as well as on natural convection small-scale experiments

# National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

---

1. Name: Aditya Kumar
2. Designation: Assistant Professor
3. Office Address: MN-107, Department of Energy & Environment, NIT Tiruchirappalli
4. Telephone (Direct) (Optional):  
Telephone :                      Extn (Optional):  
Mobile (Optional):
5. Email (Primary): adityakumar@nitt.edu                      Email (Secondary) :  
aditya100a@gmail.com
6. Field(s) of Specialization: Thermal Engineering, Solar Thermal Systems, Energy Storage, Phase change materials, Nanofluid heat transfer, Natural convection

## 7. Employment Profile

Job Title	Employer	From	To
Assistant Professor	NIT Trichy	Oct 2022	Present
Institute Postdoc Fellow	IIT Bombay	Feb 2021	Oct 2022

## 8. Academic Qualifications (From Highest Degree to High School):

Examination	Board / University	Year	Division/ Grade	Subjects
PhD	IIT Roorkee	2020	First	Thermal Engineering
M Tech	IIT Roorkee	2015	First	Thermal Engineering
B Tech	GBTU Lucknow	2012	First	Mechanical Engineering

## 9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/Centre/Institution	From	To

## National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

---

### 10. Academic/Administrative Responsibilities outside the University

Position	Institution	From	To

### 11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization

### 12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)
2013	Research Fellowship	MHRD India	July 2013	June 2015
2015	Research Fellowship	MHRD India	July 2015	June 2020

### 13. Details of Academic Work

- (i) Curriculum Development
- (ii) Courses taught at Postgraduate and Undergraduate levels
- (iii) Projects guided at Postgraduate level
- (iv) Other contribution(s)

### 14. Details of Major R&D Projects

Title of Project	Funding Agency	Duration		Status
		From	To	Ongoing/ Completed

### 15. Number of PhDs guided

Name of the PhD Scholar	Title of PhD Thesis	Role (Supervisor/ Co-Supervisor)	Year of Award

## National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

---

16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

Date (s)	Title of Activity	Level of Event (International/ National/ Local)	Role (Participant/ Speaker/ Chairperson, Paper presenter, Any other)	Event Organized by	Venue

17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)

Title of Activity	Level of Event (International/ National/ Local)	Date (s)	Role	Venue

18. Invited Talks delivered

Topic	Date	Inviting Organization

19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member )	Organization	Membership No. with date
Life Member	ISHMT	1405 30-10-2019

20. Academic Foreign Visits

Country	Duration of Visit	Programme

**National Institute of Technology, Tiruchirappalli:  
Performa for CV of Faculty/ Staff Members**

---

21. Publications

(A) Refereed Research Journals:

Author(s)	Title of Paper	Journal	Volume (No.)	Page numbers	Year	Impact Factor of the Journal (Optional)
Aditya Kumar, Sudhakar Subudhi	Experimental investigation on the thermophysical properties of low concentration magnetic colloidal suspensions (nanofluids) with the variations in temperature & magnetic field	Journal of Magnetism and Magnetic Materials	526	167723	2021	2.993
Aditya Kumar, Sudhakar Subudhi	Thermal fluctuations and boundary layer properties of turbulent natural convection inside open cavities of different dimensions heated from below	Physics of Fluids	32	067114	2020	4.98
Aditya Kumar, Sudhakar Subudhi	Preparation, characterization and heat transfer analysis of nanofluids used for engine cooling	Applied Thermal Engineering	160	114092	2019	6.465
Aditya Kumar, Sudhakar Subudhi	Preparation, characteristics, convection and applications of magnetic nanofluids: A	Heat and Mass Transfer	54	241-265	2018	1.867

**National Institute of Technology, Tiruchirappalli:  
Performa for CV of Faculty/ Staff Members**

	review					
Aditya Kumar, Vivekananda, Sudhakar Subudhi	Cooling and Dehumidification using Vortex tube	Applied Thermal Engineering	122	181-193	2017	6.465
Rajesh Choudhary, Deepak Khurana, Aditya Kumar, Sudhakar Subudhi	Stability analysis of Al <sub>2</sub> O <sub>3</sub> /water nanofluids	Journal of Experimental Nanoscience	12	1-18	2017	3.075
Deepak Kumar, Aditya Kumar, Sudhakar Subudhi	Magnetic field effect on the buoyancy-driven convection in Fe <sub>3</sub> O <sub>4</sub> /water nanofluid filled enclosure with mutual orthogonal heaters	Trans. of ASME- Journal of Thermal Science and Engineering Applications	13	041021	2021	1.47
Deepak Kumar, Aditya Kumar, Sudhakar Subudhi	Effect of spatially varying magnetic field on the cooling of an electronic component by natural convection with magnetic nanofluids	Trans. of ASME- Journal of Thermal Science and Engineering Applications	13	061017	2021	1.47

(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/ Paper	Title of the Proceedings	Page numbers	Conference Theme	Venue	Year
Aditya Kumar, Deepak Kumar, Sudhakar Subudhi	Thermal instability in the open cavity turbulent natural	Thermal instability in the open cavity turbulent natural	NA	8th International and 47th National Conference on Fluid	IIT Guwahati	2020

National Institute of Technology, Tiruchirappalli:  
Performa for CV of Faculty/ Staff Members

	convection	convection		Mechanics and Fluid Power		
Aditya Kumar, Deepak Kumar, Sudhakar Subudhi	Experimental investigation on the heat transfer properties of Fe <sub>3</sub> O <sub>4</sub> based magnetic nanofluid	Experimental investigation on the heat transfer properties of Fe <sub>3</sub> O <sub>4</sub> based magnetic nanofluid	NA	25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference	IIT Roorkee	2019
Aditya Kumar, Sudhakar Subudhi	Experimental investigation of convection instability and heat transfer characteristics by Fe <sub>3</sub> O <sub>4</sub> -water magnetic nanofluid	Experimental investigation of convection instability and heat transfer characteristics by Fe <sub>3</sub> O <sub>4</sub> -water magnetic nanofluid	NA	10th International Conference on Multiphase Flow, ICMF 2019	Rio de Janeiro, Brazil	2019
Aditya Kumar, Sudhakar Subudhi	Experimental Investigation of Natural Convection in an Open Cavity with Water and Fe <sub>3</sub> O <sub>4</sub> /Water Magnetic Nanofluid	Experimental Investigation of Natural Convection in an Open Cavity with Water and Fe <sub>3</sub> O <sub>4</sub> /Water Magnetic Nanofluid	NA	7th International and 45th National Conference on Fluid Mechanics and Fluid Power	IIT Bombay	2018
Aditya Kumar, Sudhakar Subudhi	Investigation of thermal conductivity of water based Fe <sub>3</sub> O <sub>4</sub> magnetic nanofluids	Investigation of thermal conductivity of water based Fe <sub>3</sub> O <sub>4</sub> magnetic nanofluids	NA	COMPFLU-2018: International Conference on Complex Fluids and Soft Matter	IIT Roorkee	2018
Aditya Kumar, Sudhakar Subudhi	Investigation of stability of water-based alumina nanofluids	Investigation of stability of water-based alumina nanofluids	NA	6th International and 43rd National Conference on Fluid Mechanics and Fluid Power	MNIT A	2016

National Institute of Technology, Tiruchirappalli:  
Performa for CV of Faculty/ Staff Members

---

Aditya Kumar, Deepak Khurana, Rajesh Choudhary, Sudhakar Subudhi	Preparation and Stability Analysis of Water Based Aluminum Oxide Nanofluids	Preparation and Stability Analysis of Water Based Aluminum Oxide Nanofluids	NA	International Conference on Energy Systems and Developments 2015	Pune	2015
--	---	---	----	--	------	------

(C) Books & Monographs

Author(s)	Title of Book/Monograph	Name of Publishers	Year of Publication	ISSN/ISBN Number
Aditya Kumar, Sudhakar Subudhi	Thermal Characteristics and Convection in Nanofluids	Springer	2021	978-981-33-4247-7