

ALOK KUMAR

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Lab Address	Computational Manufacturing Systems Laboratory (CMSL), Department of Mechanical Engineering, Indian Institute of Technology Kanpur (IITK), Kanpur, India. Tel: 0512 259 714.
Google Scholar	https://scholar.google.com/citations?user=OvWn22sAAAAJ&hl=en
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Educational Qualification

Year	Degree	Institute	CPI/Percentage
2016-2021	Doctor of Philosophy (Ph.D.) <i>Mechanical Engineering</i>	Indian Institute of Technology, Kanpur	9.33
2014-2016	Master of Technology (M.Tech.) <i>Mechanical Engineering</i>	Indian Institute of Technology, Kanpur	9.50
2009-2013	Batchlor of Technology (B.Tech.) <i>Industrial and Production Engineering</i>	Institute of Engineering and Rural Technology, Allahabad	78.02%
2008	Senior Secondary <i>(Uttar Pradesh Education Board)</i>	S. B. V. M. Inter College, Mahmudabad, Sitapur	76.40%
2006	Secondary <i>(Uttar Pradesh Education Board)</i>	S. B. V. M. Inter College, Mahmudabad, Sitapur	74.83%

Publications

Publications:

- **A. Kumar**, M. Založnik, H. Combeau, G. Lesoult, A. Kumar, Channel Segregation during Columnar Solidification: Relation between Mushy Zone Instability and Mush Permeability, **Int. J. Heat Mass Transf.** 164 (2021) 120602. <https://doi.org/10.1016/j.ijheatmasstransfer.2020.120602>.
- R. Kumar, R.K. Shukla, **A. Kumar**, A. Kumar, A computational study on air entrapment and its effect on convective heat transfer during droplet impact on a substrate, **Int. J. Therm. Sci.** 153 (2020) 106363. <https://doi.org/10.1016/j.ijthermalsci.2020.106363>.
- **A. Kumar**, S.K. Yadav, A. Mahato, A. Kumar, On-demand intermittent ice slurry generation for subzero cold thermal energy storage: Numerical simulation and performance analysis, **Appl. Therm. Eng.** 161 (2019) 114081. <https://doi.org/10.1016/j.applthermaleng.2019.114081>.
- R.K. Shukla, **A. Kumar**, R. Kumar, D. Singh, A. Kumar, Numerical study of pore formation in thermal spray coating process by investigating dynamics of air entrapment, **Surf. Coatings Technol.** 378 (2019) 124972. <https://doi.org/10.1016/j.surfcoat.2019.124972>.

- V.K. Tiwari, **A. Kumar**, A. Kumar, Enhancing ice slurry generation by using inclined cavity for subzero cold thermal energy storage: Simulation, experiment and performance analysis, **Energy**. 183 (2019) 398–414. <https://doi.org/10.1016/j.energy.2019.06.121>.
- V. Soni, **A. Kumar**, A. Kumar, V.K. Jain, Real-time experimental study and numerical simulation of phase change material during the discharge stage: Thermo-fluidic behavior, solidification morphology, and energy content, **Energy Storage**. 1 (2019) e51. <https://doi.org/10.1002/est2.51>.

Conference Proceedings:

- **A. Kumar**, D. Singh, A. Kumar, PIV Study to Analyze Natural Convection during Directional Solidification of a Metal-Alloy Analogue, Proceedings of the 6th International and 43rd National Conference on Fluid Mechanics and Fluid Power December 15-17, 2016, MNNITA, Allahabad, U.P., India.
- V. Soni, **A. Kumar**, A. Kumar, V.K. Jain, Behaviour of phase change material during discharge stage in a thermal energy storage system: An experimental and numerical study, 12th IIR Conference on Phase-Change Materials and Slurries for Refrigeration and Air Conditioning (PCM 2018), May 21-23, 2018, Orford (Québec), Canada. <https://doi.org/10.18462/iir.pcm.2018.0036>.
- R.K. Shukla, **A. Kumar**, A. Kumar, Modelling air entrapment dynamics during impact of a high speed metal droplet onto a solid substrate, Fifth International Conference on Computational Methods for Thermal Problems THERMACOMP2018, July 9-11, 2018, Indian Institute of Science, Bangalore, India.
- D. Singh, J. Kumawat, **A. Kumar**, A. Kumar, Modeling of solidification of water droplet impact on a substrate with undercooling effect, Fifth International Conference on Computational Methods for Thermal Problems THERMACOMP2018, July 9-11, 2018, Indian Institute of Science, Bangalore, India.

Achievements/Academic Honors/ Awards/ Fellowships

- **Japan-Asia Youth Exchange Program in Science (SAKURA) Fellowship** by Japan Science and Technology Agency at Shibaura Institute of Technology, Tokyo, Japan (Feb 24th to March 3rd 2019).
- Selected as a member of the **Sakura Science Club** by **Japan Science and Technology Agency**.
- Selected as a **Second prize winner** of a **Boxer robot battle competition** held by **Shibaura Institute of Technology, JAPAN**.
- **Academic Excellence Award** for the year 2014-15 in Mechanical Engineering at IIT Kanpur.
- Selected as **Post Graduate Engineer Trainee (PGET)** in **Forbes & Company Limited (Shapoorji Pallonji Group)** in campus placement during M. Tech. at IIT Kanpur.
- Secured **A* grade** for exceptional performance in courses: Fundamentals of Casting & Solidification, Modelling Thermal Transport in Manufacturing Processes.
- Secured **99.62** percentile in GATE 2014.

Professional Training

- Summer Training from Jharkhand Government Tool Room & Training Centre on Catia-V5R19 & CNC Milling (From June 18th to July 18th 2012).
- Summer Training from Mechanical workshop, N.E. Railway, Gorakhpur (From June 18th to July 18th 2011).

Workshops/ Trainings and Seminars/ Talks

- Webinar on **“Welding Based Additive Manufacturing Fundamentals and Challenges in India”** conducted by Department of Mechanical Engineering, Sri Ranganathar Institute of Engineering and Technology, Athipalayam, Coimbatore-64110 (October 15, 2020).
- QIP short term course on **“Computational Fluid Dynamics: Fundamental and Applications”** conducted by Department of Mechanical Engineering, Dr. B. R. Ambedkar National Institute of Technology Jalandhar, Punjab, India, (Sept 21-25, 2020).
- Successfully completed **“Programming for Everybody (Getting Started with Python)”** an online course authorized by **University of Michigan** and offered through **Coursera** (May 23, 2020).
- QIP short term course on **“Thermal Energy Storage for Effective Energy Management”** conducted by Department of Mechanical Engineering, IIT Kanpur, India, (Feb 10-14, 2020).
- QIP short term course on **“Additive Manufacturing”** conducted by Department of Mechanical Engineering, IIT Kanpur, India, (Feb 11-15, 2020).
- Successfully completed **“Robotics Seminar-Fabrication of Boxer type Robots”** organized by **Shibaura Institute of Technology, JAPAN**.
- AICTE sponsored short term course on **“Additive Manufacturing”** held at IIT Kanpur, India, (Feb 05-09, 2018).

Technical Skills

Programming Languages/Libraries: C, C++, Fortran, Python, Matplotlib, NumPy

Application/Software: OpenFOAM, ANSYS Fluent 18.0, CATIA, Auto CAD 2007, MATLAB, Tecplot, Origin, LATEX

Languages Known

- Conversant in English and Hindi