

# CURRICULUM VITAE

## Personal Information

**Name:** Atul Srivastava  
**Nationality:** Indian

## Address for Correspondence

Atul Srivastava  
Institute Chair Professor  
Department of Mechanical Engineering  
Indian Institute of Technology, Bombay  
Powai – 400076, Mumbai, India  
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## Educational Qualification

- Doctor of Philosophy** (Mechanical Engineering) 2006  
**Indian Institute of Technology Kanpur** 208016, India.  
Dissertation title: Optical Imaging and Control of Convection around a KDP crystal growing from its aqueous solution.
- Master of Technology** (Laser Technology) 2000  
**Indian Institute of Technology Kanpur** 208016, India.  
Dissertation title: Laser interferometric study of Rayleigh-Benard convection in a differentially-heated circular fluid layer.
- Bachelor of Technology** (Mechanical Engineering) 1997  
**College of Technology**, G.B. Pant University of Agriculture and Technology, Pantnagar, India.

## Teaching and Research Experience

1. Professor, Dept of Mechanical Engineering July 2019-Present  
Indian Institute of Technology Bombay, Mumbai
2. Associate Professor, Dept. of Mechanical Engineering March 2015-July 2019  
Indian Institute of Technology Bombay, Mumbai
3. Assistant Professor, Dept. of Mechanical Engineering May 2011-March 2015  
Indian Institute of Technology Bombay, Mumbai
4. GCOE Visiting Professor: Graduate School of Science October-Nov 2011  
Tohoku University, Sendai, Japan
5. Visiting Research Fellow July 2010  
Department of Mechanical Engineering  
University of Alabama, Tuscaloosa, AL, USA
6. JSPS Post Doctoral Research Fellow Sept. 2008-Sept. 2010  
Graduate School of Science, Tohoku University, Japan.

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| 7. GCOE Visiting Scientist: Graduate School of Science<br>Tohoku University, Sendai, Japan         | February-March 2008    |
| 8. Scientist-D, Raja Ramanna Centre for Advanced Technology<br>Indore, India.                      | July 2005-June 2009    |
| Scientist-E, Raja Ramanna Centre for Advanced Technology<br>Indore, India.                         | July 2005-April 2011   |
| 9. Dr. K.S. Krishnan Research Fellow<br>Raja Ramanna Centre for Advanced Technology, Indore, India | March 2004-July 2005   |
| 10. Senior Project Associate<br>Department of Mechanical Engineering, IIT Kanpur                   | October 1997-July 1998 |

### **Awards and Professional Honors**

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| 1. <b>SwarnaJayanti Fellowship</b><br>Department of Science and Technology, Government of India  | 2015         |
| 2. <b>Institute Chair Professor</b><br>Indian Institute of Technology Bombay, Powai, India   | 2021-Present |
| 3. <b>IRCC Research Publication Award</b><br>Indian Institute of Technology Bombay, Powai, India   | 2022         |
| 4. <b>Prof. V.M.K. Sastri Best Paper Award</b><br>26th National and 4 <sup>th</sup> International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC-2021), IIT Madras, India       | 2021         |
| 5. <b>Three PhD dissertations under my guidance received the Institute-level Excellence in PhD thesis awards</b><br>Indian Institute of Technology Bombay, Powai, India                | 2020, 2021   |
| 6. <b>Prof. V.M.K. Sastri Best Paper Award</b><br>24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC-2017), BITS Pilani-Hyderabad Campus, India | 2017         |
| 7. <b>JSPS Post-Doctoral Research Fellowship</b><br>Japan Society for Promotion of Sciences, Japan   | 2008         |
| 8. <b>Innovative Student Projects Award (Doctoral level)</b><br>Indian National Academy of Engineering (INAE)  | 2007         |
| 9. <b>Best PhD Thesis Award</b><br>National Laser Symposium-06, Indian Laser Association (ILA)   | 2006         |
| 10. <b>Dr. K.S. Krishnan Research Fellowship</b><br>Dept. of Atomic Energy, Board of Research in Nuclear Sciences (BRNS), India.   | 2004         |
| 11. <b>M.G. Deshpande Best Paper Award</b><br>National Fluid Mechanics & Fluid Power Conference held at PEC, Chandigarh, India.  | 2001         |

12. As part of the worldwide celebration of International Year of Light 2015, the **homepage of Optics and Photonics Society of Singapore highlighted** the research group's interferometry-based image(s) in the category of thermos-fluids. (**Annexure I**).
13. One of the review articles written on invitation from the Editor-in-Chief of Journal of Flow Visualization and Image Processing (JFVIP) highlighted as the **2<sup>nd</sup> most downloaded articles** during 2022. (**Annexure II**).

### Research Interests

1. Experimental heat and mass transfer.
2. Two-phase flows; Boiling Heat Transfer.
3. Laser-based measurements for fluid flow and heat transfer.
4. Biomedical applications of lasers.
5. Crystal growth and Material Characterization.
6. Optical Tomography.

### Other professional contributions

- Associate Editor, Case Studies in Thermal Engineering (CSITE), Elsevier. (June 2021-Present)
- Lead (Associate) Editor, Journal of Multiphase and Technology.
- Editorial Board Member, Heat Transfer (Wiley).
- Guest Editor for two special issues of Journal of Flow Visualization and Image Processing.
- Member, Board of Studies, Mechanical Engineering Department, TIET Patiala.
- Plenary lecture at 3rd Biennial International Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2022), held at AMITY University, August 2022.
- Invited to deliver Keynote lecture at 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC 2021) to be held at IIT Madras, India, December 2021.
- Invited to deliver Keynote lecture at International Symposium on Fluids and Thermal Engineering FLUTE-2021, held at AMITY University, July 2021.
- Plenary lecture at "Two-day international colloquium on Recent advances in Photonics", held at VIT, February 2021.
- Reviewer for leading journals such as Nature Scientific Reports, Physics of Fluids, International Journal of Heat and Mass Transfer, International Journal of Thermal Sciences, Journal of Thermal Biology, Experimental thermal and Fluid Science, Journal of Crystal Growth, Journal of Chemical Engineering and Technology, Journal of Flow Visualization and Image Processing, Crystal Research and Technology, Sadhana, Measurements, Sensors and Actuators etc.
- As part of outreach activities, delivered a series of lectures at various Engineering colleges of India.

**Sponsored research projects:** 8 Completed (DST, CSIR, BRNS, BRFST, Cummins India Ltd. etc.); 01 (Ongoing); **Total research grant acquired**  $\approx$  7.0 Crore

**Students guidance:** PhD (14 Completed, 12 Ongoing); M.Tech/DD (47 Completed, 04 Ongoing); Post-doctoral fellows (07 Completed).

## List of Publications

### BOOKS/BOOK CHAPTERS

1. Principles of Interferometry and Applications, Narosa Publishers, New Delhi (Under preparation; written jointly with Prof. Ramesh Singh, IIT Bombay).
2. Laser Produced Plasma: Fabrication of Size-Controlled Nanoparticles  
**Authors:** Kaushik Choudhury, *Atul Srivastava*, Rajesh K. Singh and Ajai Kumar  
Book Chapter written on the invitation of the Editor (Prof. Tuan Anh Nguyen), Chapter#3, pp. 37-61 (2022).
3. Developments in interferometric techniques for *in-situ* observation of surface kinetics of crystals in solutions and three-dimensional analysis of transport phenomena.  
**Authors:** K. Tsukamoto, *Atul Srivastava* and P. Dold.  
Book Chapter for 14<sup>th</sup> International Summer School on Crystal Growth (Editors: Mu Wang, Dongfeng Xue and Di. Wu, Published by American Institute of Physics, NY, USA, 2010.)
4. Optical imaging and control of convection around a crystal growing from its aqueous solution.  
**Authors:** K. Muralidhar, *Atul Srivastava* and P.K. Panigrahi.  
New Topics in Crystal Growth Research (Editor: G.V. Karas, Nova publishers, New York, pp 1-83, 2005).
5. Imaging of buoyancy-driven convective field around a KDP crystal using Schlieren tomography.  
**Authors:** *Atul Srivastava*, K. Muralidhar and P.K. Panigrahi.  
Computerized Tomography for Scientists and Engineers (Editor: Prabhat Munshi, Published jointly by CRC Press (Taylor and Francis, New York) and Anamaya Publishers, New Delhi, pp 133-147, 2006).
6. Reconstruction of concentration field around a growing KDP crystal using direct and iterative tomography algorithms.  
**Authors:** *Atul Srivastava*, K. Muralidhar and P.K. Panigrahi.  
Computerized Tomography for Scientists and Engineers (Editor: Prabhat Munshi), Published by American Institute of Physics, NY, USA, pp 115-128, 2008.

### REFEREED JOURNALS (Published/In Press/Accepted)

1. **Title:** On the coupled thermal and hydrodynamic interaction of adjacently located vapor bubbles on highly wetting surfaces  
**Authors:** Prasad Kangude and *Atul Srivastava*  
**Journal:** Langmuir, Vol. 38, 45, pp. 13647–13658 (2022)
2. **Title:** Experiments to understand bubble base growth mechanism(s) on hydrophobic surfaces under the influence of bulk flow inertia during nucleate boiling regime.  
**Authors:** M. Moiz, Sai Raja Gopal Vadlamudi and *Atul Srivastava*  
**Journal:** International Comm. in Heat and Mass Transfer, In Press, (2023)

3. **Title:** Non-intrusive diagnostics of differentially-heated two-component immiscible fluid layer with phase change  
**Authors:** Alok Kumar, C. Hinduja and *Atul Srivastava*  
**Journal:** International Comm. in Heat and Mass Transfer, Vol. 140, 106513 (2023)
4. **Title:** Dynamic interaction of growing vapor bubble and microlayer in flow boiling: Need for reconciliation of experiments and theory  
**Authors:** Sai Raja Gopal Vadlamudi, G. Sinha, *Atul Srivastava* and S. Singh  
**Journal:** Applied Physics Letters, 121, 124101 (2022)
5. **Title:** Mechanisms leading to the formation of double-diffusive layers during unidirectional solidification of aqueous NH<sub>4</sub>Cl solution  
**Authors:** Ila Thakur, S. Karagadde and *Atul Srivastava*  
**Journal:** Physical Review Fluids, Vol. 7, 063501 (2022)
6. **Title:** On the interfacial dynamics and capillary waves during impingement of a drop on liquid pool: A background oriented schlieren study at low Weber numbers  
**Authors:** Mohammad Shahdhaar, *Atul Srivastava* and S. Singh  
**Journal:** Physics of Fluids, 34, 082102 (2022).
7. **Title:** Simultaneous tracking of freezing front and temperature-distribution using lensless Fourier transform Digital Holographic Interferometry with potential application in cryosurgery  
**Authors:** A. Gunjal, G.K. Sinha, S. Narayan, *Atul Srivastava* and M.D. Atrey  
**Journal:** Experimental Thermal and Fluid Science, Vol. 139(1), 110730 (2022).
8. **Title:** Experiments to understand bubble base evaporation mechanisms and heat transfer on nano-coated surfaces of varying wettability under nucleate pool boiling regime  
**Authors:** Prasad Kangude and *Atul Srivastava*  
**Journal:** International Journal of Multiphase Flow, Vol. 152, 104098 (2022)
9. **Title:** Microlayer dynamics during growth process of single vapor bubble under subcooled flow boiling conditions  
**Authors:** Gulshan Sinha, Surya Narayan L. and *Atul Srivastava*  
**Journal:** Journal of Fluid Mechanics, Vol. 931, A23 (2022)  
<https://doi.org/10.1017/jfm.2021.958>
10. **Title:** Simultaneous investigation of thermal and vapour concentration fields around an impinging droplet using dual wavelength interferometry  
**Authors:** Surya Narayan, A. Bansal and *Atul Srivastava*  
**Journal:** International Journal of Heat and Mass Transfer, Vol. 185, 122400 (2022)  
<https://doi.org/10.1016/j.ijheatmasstransfer.2021.122400>
11. **Title:** Modelling the thermal response of laser-irradiated biological samples through generalized non-Fourier heat conduction models: A review  
**Authors:** *Atul Srivastava* and Sumit Kumar  
**Journal:** Annual Review of Heat Transfer, Vol. 24, 339-433 (2022)
12. **Title:** Digital Holographic imaging of thermal signatures and its use in inhomogeneity identification  
**Authors:** Subhash Kumar, A. Anand and *Atul Srivastava*

- Journal:** Optics and Lasers in Engineering, Vol. 160, 107227 (2023)
13. **Title:** Simultaneous mapping of buoyancy-induced flow and temperature fields using thermographic PIV.  
**Authors:** V. Kishor, A. Belekar, *Atul Srivastava* and S.Singh  
**Journal:** Experimental Heat Transfer, In Press (2022).
  14. **Title:** Imaging convective phenomena inside highly refractive cylindrical enclosures  
**Authors:** G.K. Sinha, S. K. Utadiya A. Patel, S. Narayan, Arun and *Atul Srivastava*  
**Journal:** Heat Transfer Engineering (Taylor and Francis), In Press (2022).
  15. **Title:** A Comparative Study on the Microstructure Development in Fe50Cu50 Alloy Prepared using Aerodynamic Levitation Process and W-wire held process.  
**Authors:** D. Sahoo, M. Paliwal, *Atul Srivastava* and S. Mishra.  
**Journal:** Journal of Alloys and Compounds, Vol. 925, 166693 (2022).
  16. **Title:** A comprehensive model for single bubble nucleate flow boiling  
**Authors:** Shyamkumar PI, S. Singh, *Atul Srivastava* and M. Visaria  
**Journal:** ASME Journal of Heat Transfer, In Press (2022)
  17. **Title:** Multi view interferometric tomography measurements of convective phenomena in a differentially-heated nanofluid layer  
**Authors:** S.S. Rao and *Atul Srivastava*  
**Journal:** Experimental Heat Transfer, In Press (2022).
  18. **Title:** Numerical and experimental investigation on tracking of freezing front during the cryosurgical freezing of a tissue-mimicking medium.  
**Authors:** A. Gunjal, Gulshan Kumar, *Atul Srivastava* and M. D. Atrey  
**Journal:** Computational Thermal Sciences, In Press, (2022).
  19. **Title:** Background oriented schlieren for flow and thermal systems: Principles of image formation and applications.  
**Authors:** *Atul Srivastava*, Surya Narayan L. and Gulshan Sinha  
**Journal:** Journal of Flow Visualization and Image Processing, pp 29-68, (2022).  
<https://doi-org/10.1615/JFlowVisImageProc.2021039623>  
(Written on the invitation from the Editor-in-Chief of the journal) **2<sup>nd</sup> Most Downloaded article, as listed on the journal webpage.**
  20. **Title:** Multiple cryoprobe placement strategy for a single freeze cryosurgery planning.  
**Authors:** Anish Gunjal, *Atul Srivastava* and M.D. Atrey  
**Journal:** Case Studies in Thermal Engineering, Vol. 34, 101992 (2022).
  21. **Title:** On the mechanisms leading to ordered nanoparticles deposition during single bubble nucleate pool boiling regime  
**Authors:** Prasad Kangude and *Atul Srivastava*  
**Journal:** Physics of Fluids, Vol. 33, 113306 (2021). **(Highlighted as Featured Article)**
  22. **Title:** On the identification and mapping of three distinct stages of single vapour bubble growth with the corresponding microlayer dynamics  
**Authors:** Surya Narayan L. and *Atul Srivastava*  
**Journal:** International Journal of Multiphase Flow, 103722, Vol. 142 (2021).

23. **Title:** Investigation of vorticity characteristics in the wake region of an eccentrically embedded cylinder in a rectangular channel  
**Authors:** Apurva Vyas and *Atul Srivastava*  
**Journal:** Journal of Flow Visualization and Image Processing, Vol. 29, pp. 27-41 (2022).
24. **Title:** Spray Combustion of Rocket-Grade Kerosene Based Nanofluid with Oxygen  
**Authors:** Amit K. Yadav, A. Choudhury and *Atul Srivastava*  
**Journal:** Journal of Propulsion and Power, In Press (2021).  
<https://doi.org/10.2514/1.B38507>
25. **Title:** Flow instabilities and heat transfer in a differentially-heated cavity placed at varying inclination angles: Non-intrusive measurements  
**Authors:** Vimal Kishor, S. Singh and *Atul Srivastava*  
**Journal:** Physics of Fluids, Vol. 33, 094103 (2021).
26. **Title:** Background oriented schlieren for flow and thermal systems: Principles of image formation and applications (**Invited Review Article**)  
**Authors:** *Atul Srivastava*, Surya Narayan L. and Gulshan Sinha  
**Journal:** Journal of Flow Visualization and Image Processing, In Press (2021).
27. **Title:** Non-contact experiments to quantify the microlayer evaporation heat transfer coefficient during isolated nucleate boiling regime.  
**Authors:** Surya Narayan L. and *Atul Srivastava*  
**Journal:** International Communications Heat & Mass Transfer, 105191, Vol. 122 (2021).
28. **Title:** Morphological transition of silicate crystals solidified from highly undercooled aerodynamically levitated melt droplets.  
**Authors:** G. Shete, S. Karagadde and *Atul Srivastava*  
**Journal:** S.N. Applied Sciences, 3:219 (2021) <https://doi.org/10.1007/s42452-021-04228-w>
29. **Title:** Role of microstructure and composition on the natural convection during ternary alloy solidification  
**Authors:** V. Kumar, *Atul Srivastava* and S. Karagadde  
**Journal:** Journal of Fluid Mechanics, Vol. 913, A41 (2021) doi:10.1017/jfm.2021.1
30. **Title:** On the phenomena of partial crystallization of highly undercooled magnesium silicate molten droplet  
**Authors:** G. Shete, S. Mishra, S. Karagadde and *Atul Srivastava*  
**Journal:** Scientific Reports, In Press (2021).
31. **Title:** Gas-phase thermography of droplet combustion and its application to characterize nanofuels.  
**Authors:** Amit K. Yadav, A. Choudhury and *Atul Srivastava*  
**Journal:** International Communications in Heat and Mass Transfer, 105054, Vol. 120 (2021).
32. **Title:** Whole field measurements to understand the role of varying depths of nucleation site on vapor bubble dynamics and heat transfer rates.  
**Authors:** Surya Narayan, Vijay Pasi and *Atul Srivastava*  
**Journal:** ASME Journal of Heat Transfer, Vol. 143, 021601-1-14 (2021).

33. **Title:** Numerical investigation of thermal performance of key components of electric vehicles using nucleate boiling  
**Authors:** Shyamkumar PI, S. Singh, *Atul Srivastava* and M. Visaria  
**Journal:** Journal of Thermal Science and Engineering Applications, Vol. 13(6), 061027 (2021).  
<https://doi.org/10.1115/1.4050666>
34. **Title:** On the development of correlations for bubble lift-off parameters during subcooled nucleate flow boiling using non-intrusive dynamic measurements.  
**Authors:** Gulshan K. Sinha and *Atul Srivastava*  
**Journal:** ASME Journal of Heat Transfer, Vol. 143, 021602-1-13 (2020).
35. **Title:** Numerical study on the possible scanning pathways to optimize thermal impacts during multiple sonication of HIFU.  
**Authors:** Pragya Gupta and *Atul Srivastava*  
**Journal:** IEEE Transactions on Biomedical Engineering, Vol. 68(7), pp. 2117-2128 (2021).
36. **Title:** Experiments to understand crystallization of levitated high temperature silicate melt droplets under low vacuum conditions.  
**Authors:** B. Mishra, P. Manvar, K. Choudhury, S. Karagadde and *Atul Srivastava*  
**Journal:** Scientific Reports, 10:20910 (2020).
37. **Title:** Numerical investigation of three-dimensional freezing phenomena with potential applications into cryosurgery.  
**Authors:** Anish Gunjal, *Atul Srivastava* and M. D. Atrey  
**Journal:** Heat Transfer Research, Vol. 51, pp. 1669-1699 (2020).
38. **Title:** Numerical investigation of nucleate pool boiling heat transfer for different superheat conditions  
**Authors:** Shyamkumar PI, S. Singh, *Atul Srivastava* and M. Visaria  
**Journal:** Heat Transfer Engineering, Vol. 43(1), pp. 83-100 (2020).  
<https://doi.org/10.1080/01457632.2020.1844450>
39. **Title:** On the mechanism responsible for unconventional thermal behaviour during freezing.  
**Authors:** V. Kumar, Abhishek G., *Atul Srivastava* and S. Karagadde  
**Journal:** Journal of Fluid Mechanics, Vol. 903, A32-1-29 (2020).
40. **Title:** Flow and heat transfer measurements in the laminar wake region of semi-circular cylinder embedded within a rectangular channel  
**Authors:** Apporv Vyas, Aishwarya Yadav and *Atul Srivastava*  
**Journal:** International Communications in Heat and Mass Transfer, Vol. 116 Article 104692 (2020).
41. **Title:** An experimental investigation of heat transfer performance of wavy channels under laminar flow conditions: An interferometric study  
**Authors:** Divya Haridas, Vijay Singh and *Atul Srivastava*  
**Journal:** Journal of Enhanced Heat Transfer, Vol. 27(6), pp. 561-576 (2020).



42. **Title:** Whole field measurements to quantify the thermal impact of single vapor bubble under nucleate flow boiling regime  
**Authors:** Gulshan K. Sinha and *Atul Srivastava*  
**Journal:** International Journal of Heat and Mass Transfer, Vol. 157, 119932 (2020).
43. **Title:** Experiments on the identification of the onset of buoyancy-driven convection in high aspect ratio top open cavities  
**Authors:** Ashish Saxena, *Atul Srivastava*, Suneet Singh  
**Journal:** ASME Journal of Heat Transfer, Vol. 142, 102602-1-12 (2020), doi: <https://doi.org/10.1115/1.4047489>
44. **Title:** Understanding the growth mechanism of single vapor bubble on a hydrophobic surface: Experiments under nucleate boiling regime  
**Authors:** Prasad Kangude and *Atul Srivastava*  
**Journal:** International Journal of Heat and Mass Transfer, Vol. 154, 119775 (2020).
45. **Title:** Real-time Imaging and Visualization of Solutal Plume during Bottom-cooled solidification  
**Authors:** Ila Thakur, *Atul Srivastava*, Shyamprasad Karagadde  
**Journal:** Journal of Flow Visualization and Image Processing, In Press (2020).
46. **Title:** Development and application of Monte Carlo model to study light transport in tissue phantoms.  
**Authors:** Vipul M. Patel, *Atul Srivastava*, Suneet Singh  
**Journal:** Asian Journal of Physics, In Press (2020).
47. **Title:** Non-intrusive experimental study of natural convection in open square cavity at different inclinations  
**Authors:** Vimal Kishore, *Atul Srivastava*, Suneet Singh  
**Journal:** Journal of Flow Visualization and Image Processing, In Press (2020).
48. **Title:** Investigation of the effect of blockage ratio on flow and heat transfer in the wake region of a cylinder embedded in a channel using whole field dynamic measurements.  
**Authors:** Apurv Vyas, Biswajit Mishra and *Atul Srivastava*  
**Journal:** International Journal of Thermal Sciences, Vol. 153, 106322 (2020).
49. **Title:** Soret separation of species in a salt solution under varying transient thermal field: an interferometric study through sensitivity analysis.  
**Authors:** Y. Nimdeo and *Atul Srivastava*  
**Journal:** Experimental Heat Transfer, pp. 1-18 (2020).
50. **Title:** Measuring thermal diffusivity of dilute nanofluids using interferometry-based inverse heat transfer approach.  
**Authors:** S.S. Rao and *Atul Srivastava*  
**Journal:** Journal of Thermophysics and Heat Transfer, pp. 1-12 (2020).
51. **Title:** Real-time investigation of evolution of double-diffusive layers in high-prandtl number fluids.  
**Authors:** Virkeshwar Kumar, *Atul Srivastava* and Shyamprasad Karagadde  
**Journal:** Journal of Flow Visualization and Image Processing, In Press (2020).

52. **Title:** Comparison of local heat transfer distribution in between three-dimensional inclined closed and open cavities  
**Authors:** Ashish Saxena, Suneet Singh and *Atul Srivastava*  
**Journal:** ASME Journal of Heat Transfer, Vol. 142, pp. 032601-1-12 (2020).
53. **Title:** Experiments on flow and heat transfer characteristics of a rectangular channel with a built-in adiabatic square cylinder.  
**Authors:** Apurv Vyas, Biswajit Mishra and Atul Srivastava  
**Journal:** International Journal of Heat and Mass Transfer, Vol. 147, Article 118908 (2020).
54. **Title:** On the identification of flow instabilities in a differentially-heated closed cavity: Non-intrusive measurements.  
**Authors:** Vimal Kishor, Suneet Singh and *Atul Srivastava*  
**Journal:** International Journal of Heat and Mass Transfer, Vol. 147, 118933 (2020).
55. **Title:** Performance evaluation of alumina nanofluids and nanoparticles-deposited surface on nucleate pool boiling phenomena.  
**Authors:** Mihir Modi, Prasad Kangude and *Atul Srivastava*  
**Journal:** International Journal of Heat and Mass Transfer, Vol. 146, 118833 (2020)
56. **Title:** Experiments on pool boiling regimes and bubble departure characteristics of single vapor bubble under subcooled bulk conditions.  
**Authors:** Surya Narayan, Tajinder Singh, and *Atul Srivastava*  
**Journal:** Experimental Thermal and Fluid Science, Vol. 111, Article 109943 (2020).
57. **Title:** A unique technique for analytical solution of 2-D dual phase lag bio-heat transfer problem with generalized time-dependent boundary conditions.  
**Authors:** Pranay Biswas, Suneet Singh and *Atul Srivastava*.  
**Journal:** International Journal of Thermal Sciences, Vol. 147, Article 106139 (2020).
58. **Title:** Experiments to compare the dynamics and thermal impact of single vapor bubble subjected to upward and downward flow boiling configurations.  
**Authors:** Gulshan K. Sinha and *Atul Srivastava*  
**Journal:** Experimental Heat Transfer, (2019).  
DOI: <https://doi.org/10.1080/08916152.2019.1662518>
59. **Title:** Generalized regimes for the formation of stratified regions during freezing of multi-component mixtures.  
**Authors:** V. Kumar, *Atul Srivastava* and S. Karagadde.  
**Journal:** Physics of Fluids, Vol. 31, 123602-1-9 (2019)
60. **Title:** Whole field measurements to identify the critical Rayleigh number for the onset of natural convection in top open cavity  
**Authors:** Ashish Saxena, V. Kishor, *Atul Srivastava* and Suneet Singh.  
**Journal:** Experimental Heat Transfer, 33(2), 123-140, 2020.  
DOI: 10.1080/08916152.2019.1586800
61. **Title:** Experimental study of heat transfer performance of compact wavy channel with nanofluids as the coolant medium: Real time non-intrusive measurements  
**Authors:** Vijay Singh, Divya Haridas and *Atul Srivastava*  
**Journal:** International Journal of Thermal Sciences, Vol. 145, 105993 (2019).

62. **Title:** Schlieren-based simultaneous mapping of bubble dynamics and temperature gradients in nucleate flow boiling regime: Effect of flow rates and degree of subcooling  
**Authors:** Gulshan Kumar Sinha, Saylee Mahimkar and *Atul Srivastava*  
**Journal:** Experimental Thermal and Fluid Science, Vol. 104, pp. 238-257 (2019).
63. **Title:** Simultaneous mapping of single bubble dynamics and heat transfer rates for SiO<sub>2</sub>/water nanofluids under nucleate pool boiling regime  
**Authors:** Dhairya Bhatt, Prasad Kangude and *Atul Srivastava*  
**Journal:** Physics of Fluids, Vol. 31, 017102 (2019) (**Highlighted as Editor's pick**)
64. **Title:** Experiments on the effects of varying subcooled conditions on the dynamics of single vapor bubble and heat transfer rates in nucleate pool boiling regime  
**Authors:** Surya Narayan, Tajinder Singh, *Atul Srivastava* and Suneet Singh  
**Journal:** International Journal of Heat and Mass Transfer, Vol. 134, pp. 85-100 (2019).
65. **Title:** Non-Fourier transient thermal analysis of biological tissue phantoms subjected to high intensity focused ultrasound  
**Authors:** Pragya Gupta and Atul Srivastava  
**Journal:** International Journal of Heat and Mass Transfer, Vol. 136, pp. 1052-1063 (2019).
66. **Title:** Performance evaluation of SiO<sub>2</sub>-water nanofluids for single bubble-based nucleate pool boiling heat transfer mechanisms  
**Authors:** Prasad Kangude and *Atul Srivastava*  
**Journal:** International Journal of Thermal Sciences, Vol. 138, pp. 612-625 (2019).
67. **Title:** Numerical study of single bubble nucleate boiling heat transfer in engine cooling system  
**Authors:** Shyamkumar, P.I., S. Singh, *Atul Srivastava* and M. Visaria  
**Journal:** SAE Technical Paper 2019-01-0147, 2019, doi:10.4271/2019-01-0147
68. **Title:** Combustion of Rocket-grade Kerosene Droplets loaded with Graphene Nanoplatelets - A Search for Reasons behind Optimum Mass Loadings.  
**Authors:** Amit Yadav, Arindrajit Choudhury and *Atul Srivastava*  
**Journal:** Combustion and Flame, Vol. 203, pp. 1-13 (2019).
69. **Title:** Effect of confined geometry on the size distribution of nanoparticles produced by laser ablation in liquid medium  
**Authors:** Kaushik Choudhury, R. K. Singh, P. Kumar, Mukesh Ranjan, *Atul Srivastava* and Ajai Kumar  
**Journal:** Nano-Structures and Nano-Objects, Vol. 17, pp. 129-137 (2019).
70. **Title:** Rainbow schlieren-based direct visualization of thermal gradients around single vapor bubble during nucleate boiling phenomena of water  
**Authors:** Surya Narayan, *Atul Srivastava* and Suneet Singh  
**Journal:** International Journal of Multiphase Flow, Vol. 110(8), pp. 82-95 (2019).
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- "Crystallization of silicate melt droplets under non-contact conditions: Pathway for understanding chondrule formation in early solar system", *Atul Srivastava*, PLANEX, Vol. 5(1) (2015).
- "Optical imaging and control of convection around a growing KDP crystal", *Atul Srivastava*, **KIRAN** (News bulletin, Indian Laser Association) April 2007.

## OTHER SCIENTIFIC ACTIVITIES

1. Member of research team for *Crystal Growth Experiments in Microgravity Conditions*, Tohoku University, Japan.
2. Boarded *Parabolic Flights* to conduct *Crystal Growth Experiments in Microgravity Conditions*. (Certificate Awarded by **Diamond Air Service, Japan** is attached as **Annex-II**).
3. Member of Japan Society for Promotion of Science (JSPS), Japan.



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- X-Mech-2016 <sup>OPSS enabled</sup>, Tehran, Iran, Feb. 16-17, 2016
- [ODF'16](#), <sup>OPSS enabled</sup>, Weingarten, Germany, Feb. 28-Mar. 2, 2016
- [SPIE Photonics Europe](#), Brussels, April 4-7, 2016
- Photonics, Optics, and its Applications ([ISPhOA 2016](#)) <sup>OPSS enabled</sup>, Aug. 24-24, 2016
- [icOPEN2016](#) <sup>OPSS enabled</sup>, Chengdu, China, Sept. 26-30, 2016

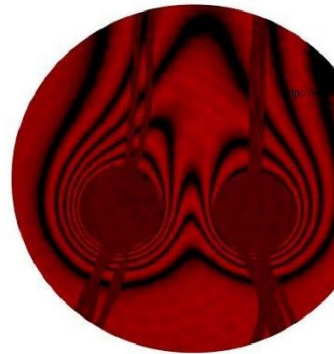
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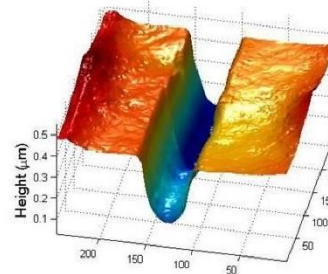
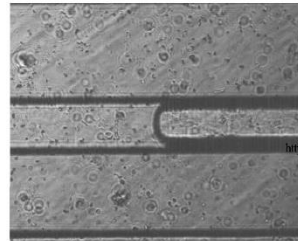
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