


### Faculty Performa

<b>Title</b>	<b>Dr.</b>	<b>First Name</b>	<b>SONAM</b>	<b>Last Name</b>	<b>TANWA R</b>	<b>Photograph</b>
<b>Designation</b>		Assistant Professor				
<b>Address</b>		Room no.-113, Third Floor, Rugby Sevens Building, University Stadium, Cluster Innovation Centre, University of Delhi, Delhi-110007.				
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<b>Web-Page</b>						
<b>Educational Qualifications</b>						
<b>Degree</b>		<b>Institution</b>			<b>Year</b>	
Ph.D		I.I.T. Roorkee			2014	
M.Sc.		I.I.T. Roorkee			2009	
B.Sc.		University of Delhi			2007	
<b>Career Profile</b>						
Working as an assistant professor at Cluster Innovation Center, University of Delhi since from Jan, 2014.						
<b>Administrative Assignments</b>						

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- Convener Examination Committee, CIC, University of Delhi.
  - Member time-table committee, CIC, University of Delhi.
  - Member Student's Advisory Committee, CIC, University of Delhi.
  - Convener Alumni Committee, CIC, University of Delhi.

**Areas of Interest / Specialization**

Computational Fluid Dynamics, Advanced numerical techniques, Finite element methods, Meshfree Methods

**Subjects Taught**

Linear Algebra, Numerical Analysis, Graph Theory, Probability & Statistics, Calculus, Finite Element Method, Partial Differential Equations, Linear Programming, Ordinary Differential equations

**Research Guidance**

Supervising one Ph.D student from Department of Mathematics under joint supervision with Dr. Pooja Raj Verma

**Publications Profile**

1. Bhargava R., Singh S. : 2013, Element free Galerkin Simulation of mixed convection MHD flow over a vertical power-law stretching sheet, *International Journal of Applied Mathematics and Mechanics*, 9 (8): 54-74.
2. Singh S., Bhargava R.: 2012, Element free Galerkin simulation of unsteady micropolar squeeze film flow of a biological lubricant, *Journal of Information & Operation Management*, ISSN: 0976–7754 & E-ISSN: 0976–7762 3 (1) 149-152.
3. Beg Anwar O., Bhargava R., Singh S., and Maregere H.:2013, Element-free galerkin method (EFGM) computation of transient micropolar magnetic squeeze biofilm, *International Journal of Applied Mathematics and Mechanics*,9, 1-21.
4. Singh S., Bhargava R.: 2014, Numerical study of natural convection within a wavy enclosure using Meshfree approach: Effect of corner heating, *The Scientific world Journal*, (Hindawi Publications), 2014, Article ID 842401, 18 pages, dx.doi.org/10.1155/2014/842401.
5. Singh S., Bhargava R.: 2015, Numerical simulation of a phase transition problem with natural convection using hybrid FEM / EFGM technique, *International Journal of Numerical methods for Heat and Fluid flow*, Vol. 25, Issue 3, pp. 570-592. (SCI publication)
6. Bhargava R., Singh S.: 2012, Numerical study of unsteady flow and heat transfer of a second grade fluid with viscous dissipation and joule heating using Meshfree approach", *World Academy of Science, Engineering and Technology*, International Science index 66, Vol. 6, Issue 6, pp. 1215-1221 (Proceeding of ICAMNA-2012 held at Paris during 27th June-28th June, 2012).
7. Bhargava R., Singh S.: 2011, Numerical study of mixed convection flow over a vertical power-law stretching sheet using EFGM, *Proceedings of International conference on Advances on Modeling, Optimization and Computing*, 280-290.
8. Bhargava R., Singh S.: 2013, Meshfree methods: An efficient advanced computing approach for Bio-medical problems, *IEEE conference proceedings, ICACCI*, 1397- 1402, Digital Object Identifier: 10.1109/ICACCI.2013.6637383.
9. Singh S., Bhargava R.: 2014, Simulation of phase transition during cryosurgical treatment of a tumor tissue loaded with nano-particles using meshfree approach, *ASME Journal of Heat*

*Transfer*, 136(12), 10 pages, DOI: 10.1115/1.4028730. (SCI Publication)

10. Singh S., Bhargava R.: 2015, Element free Galerkin simulation of flow and heat transfer of a viscoelastic fluid over a stretching sheet embedded in a porous medium with variable fluid properties and Newtonian heating, *ScientiaIranica B*, vol. 22, Issue 2, pp. 504-518. (SCI Publication)
11. Singh S. : 2018, A Meshfree Based Lattice Boltzmann Approach for Simulation of Fluid Flows within Complex Geometries: Application of Meshfree methods for LBM Simulations, *Analysis and Applications of Lattice-Boltzmann Simulations*, (188-222), 10.4018/978-1-5225-4760-0.ch006, IGI Global Publishers, USA.
12. Sonam Tanwar, Preety Kumari: 2020, X-FEM: An efficient algorithm for simulation of phase transition during prostate cryosurgery, *Computer and Mathematics with Applications*, 79(8), pp. 2119-2132. (SCI Journal, Impact Factor:2.811)
13. Sonam Tanwar, Lalhmingsangi Famhawite, Pooja Raj Verma 2023, Numerical Simulation of bio-heat transfer for cryoablation of regularly shaped tumours in liver tissue using multi-probes, *Journal of Thermal Biology*, 113, 1-3531.

#### Conference Organization/ Presentations (in the last three years)

1. Sonam Tanwar, Ruhi Sharma, 'Modelling and structural analysis for prosthesis hip design using ANSYS with Finite Element Method' presented in International conference on 'Soft computing: Theory & applications (SOCTA)' in 2020.

#### Research Projects (Major Grants/Research Collaboration)

##### **Major research project:**

Granted with early career research award through DST-SERB for the project entitled "Development of an optimal planning framework for cryosurgical treatment of tumor tissues via mathematical modeling and numerical simulations".

**Project Duration:** 3 years

**Grant Sanctioned:** 20,26,885/-

**Date of start of the project:** 30/03/2017.

**Date of Completion:** 29/03/2020

##### **Innovation Project:**

1. Worked as a CO-PI in innovation project "Weaving dreams for destitute- Night shelter project" Funded by university of Delhi.

2. Worked as a Co-PI in innovation project "Impact of FDI in multi-brand retail on local kirana shops" funded by University of Delhi.

### **Awards and Distinctions**

- JAM (Joint admission test to M.Sc.)152 (AIR) in 2007
  - CSIR-NET 144 (AIR) in 2009
  - Junior research fellowship (CSIR-JRF) Jan 2010-Dec. 2012
  - Senior research fellowship (CSIR-SRF) Jan 2013-Dec 2013
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- Teaching Excellence award for Innovation by University of Delhi, May, 2015

### **Association With Professional Bodies**

- Ramanujan Society (*Membership approval number – 1137*)
- Universal Association of Computers and Electronics Engineers (*Membership number: SM1004935*)
- Reviewer for “Alexandria Engineering Journal”, Elsevier Editorial system.
- Reviewer for International Journal of “Frontiers in Heat and Mass Transfer”.
- Reviewer for International Journal of “Computer Methods in Biomechanics and Biomedical Engineering