

# Maneesh Kumar Singh

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## EMPLOYMENT

- 2022– Imperial College London  
Postdoctoral Research Associate, Department of Mathematics
- 2021–22 University of Konstanz  
Postdoc Fellow, Department of Mathematics and Statistics
- 2019–21 Indian Institute of Science  
Postdoc Fellow, Department of Computational and Data Sciences
- 2018 Ashoka University  
Teaching Fellow, Department of Mathematics

## EDUCATION

- 2013–18 Ph.D. in Mathematics, Indian Institute of Technology Guwahati
- Thesis title: Analysis of robust computational techniques for singularly perturbed system of parabolic partial differential equations.
  - Supervisor: Prof. Natesan Srinivasan.
- 2011–13 MSc in Applied Mathematics, University of Hyderabad
- 2008–11 BA(Hons). in Mathematics, Banaras Hindu University

## FUNDING AND SCHOLARSHIPS

- 2021 D.S. Kothari Postdoctoral Fellowship, UGC, India
- 2018 NBHM Postdoctoral fellowship, UGC, India
- 2013 CSIR-UGC JRF in Mathematics, NBHM, DAE, India
- 2013 Gate Fellowship in Mathematics, GATE, UGC, India

## TEACHING EXPERIENCE

### IIT Guwahati – Teaching Assistant

- 2015–16 Calculus (MA 101), Linear algebra & ODE (MA 102)
- 2016–17 Scientific Computing (MA 322), Linear algebra & ODE (MA 102)
- 2017–18 Complex analysis & PDE (MA 201), Computational finance (MA473)

### Ashoka University – Teaching Fellow

- 2018 Calculus (1000)

## PUBLICATIONS

### Journal Articles

- 2022 M. K. Singh: A priori error analysis of discrete-ordinate weak Galerkin finite element method for radiative transfer equations. *arXiv.2211.10745*

- 2022 S. Frei, M. K. Singh: An implicitly extended Crank-Nicolson scheme for the heat equation on time-dependent domains. *arXiv:2203.06581*
- 2021 S. Ganesan, M. K. Singh: An operator-splitting finite element method for the numerical solution of radiative transfer equation. *arXiv:2112.07949*
- 2021 M. K. Singh, G. Singh, S. Natesan: A unified study on superconvergence analysis of Galerkin FEM for singularly perturbed systems of multiscale nature. *Journal of Applied Mathematics and Computing*, 66: 221-243
- 2020 M. K. Singh and S. Natesan. Numerical solution of 2D singularly perturbed reaction-diffusion system with multiple scales. *Computers & Mathematics with Applications*, 80(4): 36-53
- 2020 M. K. Singh, S. Natesan: A parameter-uniform hybrid finite difference scheme for singularly perturbed system of parabolic convection-diffusion problems. *International Journal of Computer Mathematics*, 97(4): 275-305
- 2019 M. K. Singh and S. Natesan. Numerical analysis of singularly perturbed system of parabolic convection-diffusion problem with regular boundary layers. *Differential Equations and Dynamical Systems*, 30(3):695-717
- 2019 M. K. Singh, S. Natesan: A robust computational method for singularly perturbed system of 2D parabolic convection-diffusion problems. *International Journal of Mathematical Modelling and Numerical Optimisation*, 9(2): 127-157
- 2018 M. K. Singh, S. Natesan: Richardson extrapolation technique for singularly perturbed system of parabolic partial differential equations with exponential boundary layers. *Applied Mathematics and Computation*, 333: 254-275

#### Conference Proceedings

- 2018 M. K. Singh, S. Natesan. A finite element super convergence approximations for singularly perturbed system of convection-diffusion problems. *AIP Conference Proceedings, FIAM 2018, 1975, 030016*

## PRESENTATION

### Talks at University Seminars

- 2023 24th STUOD Sandbox Workshop (ICL), ICL/UCL Numerics Seminar
- 2022 Research Scholar Seminar (IIT Guwahati)
- 2021 Oberseminar Numerik (University of Konstanz)
- 2020 Parallel Finite element Computing (Indian Institute of Science)

### Talks at Conferences

- 2023 Firedrake meeting 2023 (London), 4th STUOD Annual Workshop (IFREMER Brest)
- 2021 International Conference ADENA, IIT Guwahati
- 2018 International Conference FIAM, NIT Hamirpur
- 2017 62nd Congress OF ISTAM (OU, Hyderabad)
- 2016 ICMMDESCA-2016 (IIT Kanpur), ICTIMCAMS (BHU, Varanasi)
- 2015 ICCTP:TC (SAU, New Delhi)

## ADDITIONAL INFORMATION

Language Hindi(native), English(fluent)

Computing Python (FEniCS & Firedrake), MATLAB, L<sup>A</sup>T<sub>E</sub>X, ParaView, C/C++