

PEER-REVIEWED JOURNAL PUBLICATIONS (PUBLISHED)

1. Anahita Piranfar, Farshad Moradi Kashkooli, Wenbo Zhan, **Ajay Bhandari**, and M. Soltani, A Comparative Analysis of Alpha and Beta Therapy in Prostate Cancer Using a 3D Image-Based Spatiotemporal Model, **Annals of Biomedical Engineering**, November 2024 [Access Link](#) **IF: 4**
2. Kartika Chandra Tripathy, and **Ajay Bhandari**, Effect of various septal deviations and corrections on nasal aero and particle dynamics: An *insilico* and *invitro* investigation, **Physics of Fluids** Vol. 36(1), pp. 091919, September 2024 [Access Link](#) **IF: 4.6**
3. **Ajay Bhandari**, Boram Gu, Farshad Moradi Kashkooli, Wenbo Zhan, Image-based Predictive Modelling Frameworks for Personalised Drug Delivery in Cancer Therapy, **Journal of Controlled Release**, Vol 370, pp. 721-746, June 2024, [Access Link](#) **IF: 11.467**.
4. **Ajay Bhandari**, Anup Singh, and Wenbo Zhan, Decoding the effect of different tumor heterogeneities on thermosensitive liposome drug delivery during radiofrequency ablation: A novel heat and mass transfer perspective, **International Communications in Heat and Mass Transfer**, Vol. 153, April, 2024, [Access Link](#) **IF: 7**
5. Anahita Piranfar, Farshad Moradi Kashkooli, Wenbo Zhan, **Ajay Bhandari**, Arman Rahmim, and M. Soltani, Radiopharmaceutical Transport in Solid Tumors via a 3-Dimensional Image-Based Spatiotemporal Model, **NPJ Systems Biology and Applications (Nature)**, Vol. 10, April, 2024, [Access Link](#) **IF: 4.3**
6. Ashish Siddharth, **Ajay Bhandari**, Sarthak S. Singh, and Arun Dayal Udai, Effect of Twisting of Intravitreal Injections on Ocular Bio-mechanics: A Novel Insight to Ocular Surgery, **Biomechanics and Modeling in Mechanobiology** Vol. 23(1), February 2024, [Access Link](#) **IF: 3.5**
7. Kartika Chandra Tripathy, Md Sirajullah, Deepak Kumar Mandal, and **Ajay Bhandari**, Delineating the effects of morphological changes on retinal hemodynamics in diabetic human retinas: An *invitro* investigation, **Physics of Fluids** Vol. 36(1), pp. 011912, January 2024 (**Selected as featured by the Editor**) [Access Link](#) **IF: 4.6**
8. Kartika Chandra Tripathy, Ashish Siddharth and **Ajay Bhandari**, Image-based *insilico* investigation of hemodynamics and biomechanics in healthy and diabetic human retinas, **Microvascular Research** Vol. 150, pp. 104594, November 2023 [Access Link](#) **IF: 3.75**
9. Kartika Chandra Tripathy, Rakesh Kumar Gupta and **Ajay Bhandari**, Importance of nasal air conditioning in pre-septoplasty planning: A heat and mass transfer perspective, **International Journal of Thermal Sciences** Vol. 193, pp. 108521, November 2023 [Access Link](#) **IF: 4.8**
10. **Ajay Bhandari**, Kartikey Jaiswal, Anup Singh and Wenbo Zhan, Highlighting the effect of heterogeneous blood perfusion on radio-frequency ablation of human brain tumors: An image-based numerical investigation, **International Journal of Thermal Sciences** Vol. 189, pp. 108283, Mar 2023 [Access Link](#) **IF: 4.8**
11. **Ajay Bhandari**, Kartikey Jaiswal, Anup Singh and Wenbo Zhan, Convection-enhanced delivery of antiangiogenic drugs and liposomal cytotoxic drugs to heterogeneous brain tumour for combination therapy, **Cancers** Vol. 14, Issue 17, pp. 4177, August 2022 [Access Link](#) **IF: 6.575**
12. **Ajay Bhandari**, Ocular Fluid Mechanics and Drug Delivery: A Review of Mathematical and Computational Models, **Pharmaceutical Research** Vol.38, Issue 12, pp. 2003-2033, December 2021 [Access Link](#) **IF: 4.580**
13. **Ajay Bhandari**, Ankit Bansal and Niraj Sinha, Effect of Aging on Heat Transfer, Fluid Flow and Drug Transport in Anterior Human Eye: A Computational Study, **Journal of Controlled Release** Vol. 328, Issue 10, pp. 286-303, August, 2020, [Access Link](#) **IF: 11.467**
14. **Ajay Bhandari**, Ankit Bansal and Niraj Sinha, Numerical Modeling of Therapeutic lens Drug Delivery in Anterior Human Eye for Treatment of Primary Open Angle Glaucoma (POAG), **Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine** Vol. 234, Issue 9 pp. 942-954, July, 2020, [Access Link](#) **IF: 1.763**
15. **Ajay Bhandari**, Ankit Bansal, Anup Singh, Rakesh Kumar Gupta and Niraj Sinha, Comparison of Transport of Chemotherapeutic Drugs in Voxelized Heterogeneous Model of Human Brain Tumor, **Microvascular Research**. Vol. 124 pp. 76-90, March 2019, [Access Link](#) **IF: 3.75**
16. **Ajay Bhandari**, Ankit Bansal, Rishav Jain, Anup Singh and Niraj Sinha, Effect of Tumor Volume on Drug Delivery in Heterogeneous Vasculature of Human Brain Tumors, **ASME**

Journal of Engineering and Science in Medical Diagnostics and Therapy. Vol.2 pp. 021004 (1-10), **May 2019**, [Access Link](#) **IF: 1.7**

17. **Ajay Bhandari**, Ankit Bansal, Anup Singh and Niraj Sinha, DCE-MRI Based Voxelized Computational Model for Chemotherapeutic Drug Transport in Human Brain Tumor, **International Journal of Advances Engineering Science and Applied Mathematics** vol. 10(4) pp. 252-262, **September 2018**, [Access Link](#) **IF: 0.9**
18. **Ajay Bhandari**, Ankit Bansal, Anup Singh and Niraj Sinha, Numerical Study of Transport of Anticancer Drugs in Heterogeneous Vasculature of Human Brain Tumors Using Dynamic Contrast Enhanced- Magnetic Resonance Imaging, **ASME Journal of Biomechanical Engineering**. vol. 140 pp. 051010 (1-10), **March 2018**, [Access Link](#) **IF: 1.899**
19. **Ajay Bhandari**, Ankit Bansal, Anup Singh and Niraj Sinha, Transport of Liposome Encapsulated drugs in Voxelized Computational Model of Human Brain Tumors, **IEEE Transactions on Nano Bio Science**. vol. 16(7) pp. 634-644, **October 2017**, [Access Link](#) **IF: 3.9**
20. **Ajay Bhandari**, Ankit Bansal, Anup Singh and Niraj Sinha, Perfusion Kinetics in Human Brain Tumor with DCE-MRI derived model and CFD analysis, **Journal of Biomechanics**. Vol. 59 pp. 80-89, **May 2017**, [Access Link](#) **IF: 2.789**

PEER-REVIEWED JOURNAL PUBLICATIONS (Under Review)

21. **Ajay Bhandari**, Anup Singh, and Wenbo Zhan, Investigating the effect of Anti-angiogenic drugs on heterogeneous tumor microenvironment, **Royal Society Interface Focus** **IF:4.6**
22. **Ajay Bhandari**, Boram Gu, Farshad Moradi Kashkooli, Wenbo Zhan, Multiphysics and multiscale models in drug release, transport and delivery for different types of systems, **Small** **IF: 13**
23. **Ajay Bhandari**, Kartika Chandra Tripathy, Prashant Bokam, and Arnaud Germaneau, Patient-specific glioblastoma tumor response to electric field-mediated nanomedicine therapy and treatment optimization: A multiscale approach, **Computers in Biology and Medicine** **IF:7**
24. **Ajay Bhandari**, and Kartika Chandra Tripathy, Optimization of coil embolization procedure in ophthalmic aneurysms to restore normal blood flow to retina, **Physics of Fluids** **IF:4.6**

CONFERENCE PROCEEDINGS, PRESENTATIONS AND BOOK CHAPTERS

1. Kartika Chandra Tripathy and **Ajay Bhandari**, "Importance of Drug Administration Parameters on the Targeted Drug Delivery in the nasal cavities for various septal deviations" International Conference on Biological Innovation, Technology, Engineering, and Sciences -2024, 18th -20th December 2024, NIT Rourkela, India.
2. Sourav Choudhury, Kartika Chandra Tripathy and **Ajay Bhandari**, "Tumor Treating Field mediated Thermosensitive Liposome Drug Delivery in Human Brain Tumors: A pilot Numerical investigation" International Conference on Biological Innovation, Technology, Engineering, and Sciences -2024, 18th -20th December 2024, NIT Rourkela, India.
3. Gautam Kumar, Kartika Chandra Tripathy, and **Ajay Bhandari**, "Investigation of Hemodynamics in the Carotid Artery with Aneurysm at the Carotid-Ophthalmic Junction: An In Vitro Experiment" International Conference on Biological Innovation, Technology, Engineering, and Sciences -2024, 18th -20th December 2024, NIT Rourkela, India.
4. Aritra Roy, Balbir Prasad, Ayan Mukherjee, and **Ajay Bhandari**, "Demystifying the flow dynamics of non-Newtonian fluids in electrokinetically modulated topographically patterned Channels with Physics Informed Neural Networks" International Conference on Biological Innovation, Technology, Engineering, and Sciences -2024, 18th -20th December 2024, NIT Rourkela, India.
5. Kartika Chandra Tripathy and **Ajay Bhandari**, "Effect of septal correction on nasal aerodynamics – An invitro experimental and numerical investigation" International Conference on Thermo-Fluids and System Design, April 4-5, 2024, BIT Mesra, India.
6. Sourav Choudhury, Prashant Bokam and **Ajay Bhandari**, "Alternative brain cancer treatment using tumor treating fields: A computational approach." International Conference on Thermo-Fluids and System Design, April 4-5, 2024, BIT Mesra, India.

7. Dhruvjyoti Roy, Prashant Bokam and **Ajay Bhandari**, "Optimization of probe positioning in radiofrequency ablation of heterogeneous human brain tumor: A numerical heat transfer study" International Conference on Thermo-Fluids and System Design, April 4-5, 2024, BIT Mesra, India.
8. Kartika Chandra Tripathy and **Ajay Bhandari**, "Micro-particle deposition patterns in human nasal cavity with different types of deviations" Fluid Mechanics and Fluid Power, **December 20-22, 2023, IIT Jodhpur, India.**
9. Parth Dev Bundela, Ajay Bhandari, Sarthak S. Singh; Convection enhanced drug delivery in deformable human tumors. **AIP Conf. Proc.** 5 September 2023; 2863 (1): 020003. [Access Link.](#)
10. Sangly P Srinivas, Parth Dev Bundela, Yamalapalli Sowmya, **Ajay Bhandari**; Pharmacokinetic simulation of topical lipophilic solutes across the cornea by the finite element method. **Invest. Ophthalmol. Vis. Sci.** 2023;64(8):4744. [Access Link.](#)
11. Anahita Piranfar, M. Soltani, Farshad M. Kashkooli, Wenbo Zhan, **Ajay Bhandari**, Arman Rahmim," 177Lu-PSMA-617 Transport in Solid Tumor via 3D Spatio-temporal Model Reconstructed from Magnetic Resonance Image", Society of Nuclear Medicine and Molecular Imaging, **June 24-27, 2023, Chicago, Illinois, USA.** [Access Link.](#)
12. Shivam Gupta and **Ajay Bhandari**, "Image-based retinal hemodynamics simulation of healthy and pathological retinal vasculature" Fluid Mechanics and Fluid Power, **December 14-16, 2022, IIT Roorkee, India.** [Access Link.](#)
13. Kartika Chandra Tripathy and **Ajay Bhandari**, "Highlighting the importance of nasal air conditioning in septoplasty using virtual correction tools: A numerical study" Fluid Mechanics and Fluid Power, **December 14-16, 2022, IIT Roorkee, India.** [Access Link.](#)
14. **Ajay Bhandari**, Ankit Bansal and Niraj Sinha, "Comparison of efficacy of different drug delivery modes in anterior human eye for treatment of primary open angle glaucoma (POAG)", Computational and Mathematical Biomedical Engineering, **June 10-12, 2019, Tohoku University, Japan.**
15. Ashish Tiwari, **Ajay Bhandari**, Pankaj Wahi and Niraj Sinha, Finite Element Analysis and Computational Fluid Dynamics Study of Pore Shape in Bio-Scaffolds" International Conference on Design, Materials and Manufacturing Concerns in Production of Quality Engineering Goods, **March 27-29, 2017, HBTU, Kanpur**, pp. 31-37.
16. **Ajay Bhandari**, Ankit Bansal, Anup Singh and Niraj Sinha, "DCE-MRI Based Voxelized Computational Model for Chemotherapeutic Drug Transport in Human Brain Tumor", Asian Symposium on Computational Heat Transfer and Fluid Flow (ASCHT2017), **10th - 13rd December, 2017, IIT Madras, India.**
17. **Ajay Bhandari**, Ankit Bansal, Anup Singh and Niraj Sinha, "Study of Perfusion Kinetics in Human Brain Tumor using Leaky Tracer Kinetic Model of DCE-MRI Data and CFD", 2017 International Conference on Life System Modeling and Simulation, **Sep 22-24 2017, Nanjing, China** [Access Link.](#)
18. **Ajay Bhandari**, Ankit Bansal, Anup Singh and Niraj Sinha, "Transport of Liposome Encapsulated Drugs in Voxelized Computational Model of Brain Tumors", International Conference of Nanomedicine and Nano-biotechnology, **Sep 28-30, 2016, University Pierre and Marie Curie, Paris** [Access Link](#)
19. **Ajay Bhandari**, Ankit Bansal, Anup Singh and Niraj Sinha, "CFD Analysis of Perfusion Kinetics in Brain Tumor with DCE-MRI Derived Model", Sixth International Congress on Computational Mechanics and Simulation, **27th June–1st July 2016, IIT Bombay, India.**