

## Biography

Dr. Nirmalendu Biswas

Department of Power Engineering

Jadavpur University, Salt Lake, Kolkata 700106

### Conference Papers Published (52)

Title of the paper	Conference/ Seminar	Year	Role	Volume No. – Page
Effect of non-uniform heating on thermal performance of an enclosure filled with nanofluid	<i>Materials Today: Proceedings</i> , doi:10.1016/j.matpr.2022.01.062.	2022	A. Saha, N. Biswas, <b>N. K. Manna</b> and K. Ghosh	vol. 56, pp. 179-185.
Thermal analysis of buoyancy-driven flow in a square enclosure filled with porous medium.	<i>Materials Today: Proceedings</i> , doi:10.1016/j.matpr.2022.02.451.	2022	A. Saha, N. Biswas, <b>N. K. Manna</b> , and K. Ghosh.	vol. 63, pp. 185-191.
Thermal management with localized heating on enclosure's wall during thermal convection using different fluids.	<i>Materials Today: Proceedings</i> , doi:10.1016/j.matpr.2021.09.069.	2022.	A. Saha, N. Biswas, K. Ghosh, and <b>N. K. Manna</b> ,	vol. 52, pp. 391-397.
Mixing Performance of an Electroosmotic Micromixer: effect of baffle	Proceedings of the 1 <sup>st</sup> International Conference in Fluid Thermal and Energy Systems, June 9-11, NIT Calicut, Kerala, India, Paper no. ICFTES2022–FF–004	2022	B. Gayen, N.K. Manna, N. Biswas,	pp. 1–7
Analysis of magnetohydrodynamic thermal convection in a modified triangular cavity containing CuO-water nanofluid	Proceedings of the 1 <sup>st</sup> International Conference in Fluid Thermal and Energy Systems, June 9-11, NIT Calicut, Kerala, India, Paper no. ICFTES2022–FF–094	2022	S. Das, A. Das, S. Nandy, N.K. Manna, <b>N. Biswas</b> , A. Datta,	pp. 1–7
Free-convective heat transfer in a cylindrical annulus using hybrid nanofluid and magnetic field	Proceedings of the 1 <sup>st</sup> International Conference in Fluid Thermal and Energy Systems, June 9-11, NIT Calicut, Kerala, India, Paper no. ICFTES2022–TS–010,	2022	D. Chatterjee, N.K. Manna, <b>N. Biswas</b> ,	pp. 1–7

<b>Title of the paper</b>	<b>Conference/ Seminar</b>	<b>Year</b>	<b>Role</b>	<b>Volume No. – Page</b>
Effect of partial magnetic field on thermal transport phenomena of hybrid nanofluid in a tilted porous enclosure heated non-uniformly	Proceedings of the 1 <sup>st</sup> International Conference in Fluid Thermal and Energy Systems, June 9-11, NIT Calicut, Kerala, India, Paper no. ICFTES2022–FF–074	2022	M.K. Mondal, <b>N. Biswas</b> , U.K. Sarkar, A. Datta, D.K. Mandal, N.K. Manna,	pp. 1–7
MHD nanofluidic convective behavior in a hexagonal-shaped thermal system	, Proceedings of the 1 <sup>st</sup> International Conference in Fluid Thermal and Energy Systems, June 9-11, 2022, NIT Calicut, Kerala, India, Paper no. ICFTES2022–FF–201	2022	H.T. Bamboowala, N. Sen, S. Nag, N.K. Manna, <b>N. Biswas</b> , D.K. Mandal,	pp. 1–7
MHD flow of nanoliquid within a recto-triangular geometry having bottom heating	Proceedings of the 1 <sup>st</sup> International Conference in Fluid Thermal and Energy Systems, June 9-11, 2022, NIT Calicut, Kerala, India, Paper no. ICFTES2022–FF–040	2022	C.K. Yadav, N.K. Manna, <b>N. Biswas</b> , D.K. Mandal	pp. 1–7
Magneto-nanofluid flow evolution in a heart-shaped special cavity,	2 <sup>nd</sup> International Conference on Thermal Engineering and Management Advances, , 15-16 January, 2022 Jalpaiguri Government Engineering College, WB, Paper no. ICTEMA2022-79	2022	N. Hazra, M. Maitra, P. Chongdar, N.K. Manna, <b>N. Biswas</b> , D.K. Mandal	pp. 1–7
Hybrid Nanofluid Based MHD Thermogravitational Convection in a Porous Cavity Heated Linearly	, 26 <sup>th</sup> National and 4 <sup>th</sup> International ISHMT-ASTFE Heat and Mass Transfer Conference, December 17-20, IIT Madras, Tamil Nadu, India, Paper no. IHMTC2021–138	2021	M.K. Mondal, <b>N. Biswas</b> , A. Datta, D.K. Mandal, N.K. Manna,	pp. 1–7
Magnetohydrodynamic Convection in a Grooved Channel Embedded with a Conducting Cylinder	26 <sup>th</sup> National and 4 <sup>th</sup> International ISHMT-ASTFE Heat and Mass Transfer Conference, December 17-20, IIT Madras, Tamil Nadu, India, Paper no. IHMTC2021–138	2021	A. Das, S. Nandya, S. Das, <b>N. Biswas</b> , N.K. Manna	pp. 1–7
Effect of bottom wall curvature on thermal	2 <sup>nd</sup> International Conference on Recent Advancements in	2021	D. Chatterjee, <b>N. Biswas</b> , N. K.	pp. 1–10

<b>Title of the paper</b>	<b>Conference/ Seminar</b>	<b>Year</b>	<b>Role</b>	<b>Volume No. – Page</b>
convection of air/nanofluid in a differentially heated cavity subjected to a magnetic field	Mechanical Engineering, ICROME 2021, February 7-9, 2021, NIT Silchar, Assam, India, Paper no. ICROME 2021–055, India		Manna, D. K. Mondal,	
Curvature effect of heated sidewall during heat transport of different Prandtl number fluids in a square enclosure in the presence of a magnetic field	2 <sup>nd</sup> International Conference on Recent Advancements in Mechanical Engineering, ICROME 2021, February 7-9, NIT Silchar, Assam, India, Paper no. ICROME 2021–046, India	2021	S. Maitra, N. Biswas, N. K. Manna, D. K. Mondal,	pp. 1–10
Transport phenomena in a double driven cavity involving buoyancy, magnetic field and nanofluid,	2 <sup>nd</sup> International Conference on Recent Advancements in Mechanical Engineering, ICROME 2021, February 7-9, NIT Silchar, Assam, India, Paper no. ICROME 2021–044, India	2021	K. Sen, N. Biswas, S. Sarkar, N. K. Manna,	pp. 1–10
Effects of thermal aspect ratio on MHD thermal convection of Cu-water nanofluid saturated porous cavity,	2 <sup>nd</sup> International Conference on Recent Advancements in Mechanical Engineering, ICROME 2021, February 7-9, NIT Silchar, Assam, India, Paper no. ICROME 2021–024, India	2021	M. K. Mondal, N. Biswas, A. Datta, N. K. Manna,	pp. 1–10
MHD mixed convective heat transfer in a partially heated partially driven cavity filled with Cu-water nanofluid saturated porous media,	Proceedings of the 6 <sup>th</sup> International and 43 <sup>rd</sup> National Conference on Fluid Mechanics and Fluid Power (FMFP 2020), December 9-11, IIT Guwahati, Guwahati-781039, Assam, India, Paper no. FMFP2020–011	2020	M. K. Mondal, A. Datta, N. Biswas, N. K. Manna,	pp. 1–6
Natural Convection in a Semi-circular Enclosure	Proceedings of the 6 <sup>th</sup> International and 43 <sup>rd</sup> National Conference on Fluid Mechanics and Fluid Power (FMFP 2020), December 9-11, IIT Guwahati, Guwahati-781039, Assam, India, Paper	2020	U. K. Sarkar, N. Biswas,	pp. 1–6

Title of the paper	Conference/ Seminar	Year	Role	Volume No. – Page
	no. FMFP2020–015			
Unsteady development of Marangoni convection in a sidewall moving open cavity	3 <sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering,	2021	N. Biswas, A. Datta, D. K. Mondal, N. K. Manna,	1080, 012024
Effect of partial wall motion on MHD mixed convection heat transfer undergoing in a porous cavity filled with Cu–water nanofluid with a centrally mounted heat source,	3 <sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering	2021	M. K. Mondal, N. Biswas, U. K. Sarkar, N. K. Manna, D. K. Mondal,	1080, 012025
Thermal convection in an inclined cavity under the influence of partial magnetic field,	3 <sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering	2021	S. Maitra, N. K. Manna, D. K. Mondal, N. Biswas,	1080, 012029, pp. 1–8
Effect of partial magnetic field on thermo gravitational convection in an inclined cavity	3 <sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering	2021	D. Chnatterjee, N. K. Manna, D. K. Mondal, N. Biswas,	1080 (2021) 012030
Effect of particle size on fluid flow and heat transfer in a pipe with slurry flow	, 3 <sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering	2021	D. K. Mondal, A. Hazra, N. Biswas,	1080 , 012026
MHD convection of nanofluid saturated porous cavity heated linearly	1 <sup>st</sup> International Conference on Thermal Engineering and Management Advances (ICTEMA 2020), December 19-20, India, Paper No. TF-	2020	C. Mondal, N. Biswas, N. K. Manna,	pp. 1–6

Title of the paper	Conference/ Seminar	Year	Role	Volume No. – Page
	1577			
MHD convection in cavity under uniform heating with partially applied magnetic fields	1 <sup>st</sup> International Conference on Thermal Engineering and Management Advances (ICTEMA 2020), December 19-20, 2020, , India, Paper No. TF-158	2020	N. Biswas, R. Samanta, A. Datta, N. K. Manna,	pp. 1–6
Magneto-convective heat transfer in a cavity under partial magnetic fields	1 <sup>st</sup> International Conference on Thermal Engineering and Management Advances (ICTEMA 2020), December 19-20, India, Paper No. TF-152	2020	A. Datta, N. Biswas, N. K. Manna,	pp. 1–6

### Journal Papers Published (78)

Title of the paper	Journal of publication	Year	Role	Volume No. – Page
Role of obstructing block on enhanced heat transfer in a concentric annulus.	<i>Waves in Random and Complex Media</i> , doi:10.1080/17455030.2022.2106386	2022	A. Saha, A. Chakravarty, K. Ghosh, N. Biswas, and <b>N. Manna</b>	pp. 1-25.
Analysis of geometrical shape impact on thermal management of practical fluids using square and circular cavities.	<i>The European Physical Journal Special Topics</i> , doi: 10.1140/epjs/s11734-022-00593-8.	2022	A. Saha, <b>N.K. Manna</b> , K. Ghosh and N. Biswas	vol. 231(13-14), pp. 2509-2537.
Impact of Linear Heating Profiles on Nanofluidic Convection in Enclosure,	<i>Heat Transfer Engineering</i> .	2023	A. Saha, N. Biswas, <b>N.K. Manna</b> , and K. Ghosh,	Accepted
Magneto-nanofluidic convection and entropy generation in discretely heated cylindrical annuli with central conducting obstructions	Journal of Magnetism and Magnetic Material	2023	Chatterjee, <b>N. Biswas</b> , N.K. Manna, and D.K. Mandal,	569, 170442
A novel design of absorber surface of solar chimney power plant (SCPP): Thermal assessment, exergy and regression analysis,	Sus. Energy Technolo. Assessments	2023	D.K. Mandal, <b>N. Biswas</b> , A. Barman, R. Chakraborty, N.K. Manna,	56, 103039

Title of the paper	Journal of publication	Year	Role	Volume No. – Page
Magneto-hydrothermal convective dynamics of hybrid nanofluid packed partially cooled porous cavity: effect of half-sinusoidal heating	Journal of Thermal Analysis and Clorimetry, doi. <a href="https://doi.org/10.1007/s10973-023-11959-y">10.1007/s10973-023-11959-y</a>	2023	M.K. Mondal, <b>N. Biswas</b> , A. Datta, D.K. Mandal, and N.K. Manna,	1-24
Analysis of a square split-and-recombined electroosmotic micromixer with non-aligned inlet-outlet channels	Nanoscale Microscale Thermophys Engineering, doi. <a href="https://doi.org/10.1080/15567265.2023.2173108">10.1080/15567265.2023.2173108</a>	2023	A. Kumar, N.K. Manna, S. Sarkar, <b>N. Biswas</b>	1-20
Effect of discrete heating-cooling on magneto-thermal-hybrid nanofluidic convection in cylindrical system	International Journal of Mechanical Science	2023	D. Chatterjee, <b>N. Biswas</b> , N.K. Manna, and S. Sarkar,	238, 107852
Enhanced energy and mass transport dynamics in a thermo-magneto-bioconvective porous system containing oxytactic bacteria and nanoparticles: cleaner energy application,	Energy	2022	<b>N. Biswas</b> , D.K. Mandal, N.K. Manna, and A.C. Benim,	263 (B), 125775
Impacts of heater-cooler position and Lorentz force on heat transfer and entropy generation of hybrid nanofluid convection in quarter-circular cavity	International Journal of Numerical Methods in Heat & Fluid Flow	2023	N.K. Manna, <b>N. Biswas</b> , D.K. Mandal, U.K. Sarkar, H. F. Öztöp,	33(3), 1249-1286
Entropy analysis during heat dissipation via thermomagnetic convection in a ferrofluid-filled enclosure	International Communication in Heat and Mass Transfer	2022	S. Banik, A. S. Mirja, <b>N. Biswas</b> and R. Ganguly,	138, 106323
Magneto-hydrothermal triple-convection in a W-shaped porous cavity containing oxytactic bacteria	Scientific Reports	2022	<b>N. Biswas</b> , D.K. Mandal, N.K. Manna, Ali Cemal Benim,	12, 18053
Hybrid nanofluid magnetohydrodynamic mixed convection in a novel W-shaped porous system	International Journal of Numerical Methods in Heat & Fluid	2023	D.K. Mandal, <b>N. Biswas</b> , N.K. Manna, R.S.R. Gorla and A.J. Chamkha,	33(2), 510-544

Title of the paper	Journal of publication	Year	Role	Volume No. – Page
	Flow			
Assessment of thermal performance of hybrid nanofluid flow in a tilted porous enclosure by imposing partial magnetic fields	Waves in Random Motion and Complex Media, doi. <a href="https://doi.org/10.1080/17455030.2022.2066220">10.1080/17455030.2022.2066220</a>	2023	M.K. Mondal, <b>N. Biswas</b> , D.K. Mandal, N.K. Manna, A. J. Chamkha,	1-24
Magneto-thermal convection of hybrid nanofluid in a non-Darcian porous complex wavy enclosure	European Physical Journal Special Topics	2022	D.K. Mandal, <b>N. Biswas</b> , N.K. Manna, R.S.R. Gorla, and A. J. Chamkha,	231, 2695–2712
Thermo-fluidic transport process in a novel M-shaped cavity packed with non-Darcian porous medium and hybrid nanofluid: Application of artificial neural network (ANN)	Physics of Fluids	2022	D.K. Mandal, <b>N. Biswas</b> , N.K. Manna, D.K. Gayen, R.S.R. Gorla and A.J. Chamkha,	34, 033608
Positional impacts of partial wall translations on hybrid nanofluid flow in porous media: Real Coded Genetic Algorithm (RCGA)	International Journal of Mechanical Science	2022	M.K. Mondal, <b>N. Biswas</b> , A. Datta, B. K. Sarkar, and N.K. Manna,	217, 107030
A narrative loom of hybrid nanofluid filled wavy walled tilted porous enclosure imposing a partially active magnetic field	International Journal of Mechanical Science	2022	<b>N. Biswas</b> , M.K. Mondal, D.K. Mandal, N.K. Manna, R. S. R. Gorla and A. J. Chamkha,	217, 107028
Experimental investigation of a solar chimney power plant and its numerical verification of thermo-physical flow parameters for performance enhancement	Sustainable Energy Technological Assessments	2022	D.K. Mandal, S. Pradhan, R. Chakraborty, A. Barman, <b>N. Biswas</b>	50, 101786
Implementation of partial magnetic fields to magneto-thermal convective systems operated using hybrid-nanoliquid and porous media	Journal of Mechanical Engineering Science	2022	<b>N. Biswas</b> , M.K. Mondal, N.K. Manna, D.K. Mandal, and A. J. Chamkha,	236(10), 5687–5704
Nanofluidic thermal-fluid transport in a split-driven porous system working under a magnetic environment	International Journal of Numerical Methods in Heat & Fluid	2022	D.K. Mandal, M.K. Mondal, <b>N. Biswas</b> , N.K. Manna, R.S.R. Gorla, and A.J.	32(7), 2543-2569

Title of the paper	Journal of publication	Year	Role	Volume No. – Page
	Flow		Chamkha,	
Assessment of thermal behavior of nanofluid flow in a wavy walled cavity in presence of sliding motion and magnetic field	Materials Today: Proceedings	2022	S. Nandy, S. Das, A. Das, N.K. Manna, <b>N. Biswas</b>	52, 1707–1713
Thermofluidic transport phenomena of hybrid nanofluid in a porous wavy enclosure imposing magnetic fields	Materials Today: Proceedings	2022	M. K. Mondal, <b>N. Biswas</b> , A. Datta, D. K. Mandal, N.K. Manna	52, 505–512
Thermo-fluidic transport process in a double-driven cavity with triangular adiabatic obstacles	Materials Today: Proceedings	2022	K. Sen, <b>N. Biswas</b> , N.K. Manna	52, 524–531
Thermo-magnetic convection of nanofluid in a triangular cavity with a heated inverted triangular object	Materials Today: Proceedings	2022	D. Chatterjee, N.K. Manna, <b>N. Biswas</b>	52, 427–433
Hydrothermal performance of hybrid nanofluid in a complex wavy porous cavity imposing a magnetic field	Materials Today: Proceedings	2022	S. Maitra, D.K. Mandal, <b>N. Biswas</b> , A. Datta, N.K. Manna,	52, 419–426
Role of surface undulation during mixed bioconvective nanofluid flow in porous media in presence of oxytactic bacteria and magnetic fields	International Journal of Mechanical Science	2021	D.K. Mandal, <b>N. Biswas</b> , N.K. Manna, R.S.R. Gorla and A.J. Chamkha,	211, 106778
Thermal management of nanofluid filled porous cavity utilized for solar heating system	Journal of Institute of Engineers, India Series C	2022	A. Datta, <b>N. Biswas</b> , N.K. Manna, and D.K. Mandal	103, 207–221
Numerical investigation of double-diffusive natural convection in a staggered cavity with two triangular obstacles	European Physical Journal Plus	2021	K. Al-Farhany, M.A. Alomari, K. B. Saleem, W. Al-Kouz, <b>N. Biswas</b>	136:814, 1–24
Effects of fins on magnetohydrodynamic conjugate natural convection in a nanofluid-saturated porous inclined enclosure,	International Communication in Heat Mass Transfer	2021	K. Al-Farhany, K.K. Al-Chlaihawi, M.F. Al-dawody, <b>N. Biswas</b> , A.J. Chamkha,	126, 105413
Magnetohydrodynamic thermal characteristics of water-based hybrid nanofluid filled non-Darcian porous wavy enclosure: effect of undulation	International Journal of Numerical Methods in Heat & Fluid	2022	<b>N. Biswas</b> , D.K. Mandal, N.K. Manna, R.S.R. Gorla, and A.J. Chamkha	32 (5), 1742-1777



Title of the paper	Journal of publication	Year	Role	Volume No. – Page
	Flow			
Effect of surface waviness on MHD thermo-gravitational convection of Cu–Al <sub>2</sub> O <sub>3</sub> –water hybrid nanofluid in a porous oblique enclosure	Physica Scripta	2021	<u>N. Biswas</u> , N.K. Manna, A.J. Chamkha and D.K. Mandal	96, 105002
Magnetohydrodynamic mixed bioconvection of oxytactic microorganisms in a nanofluid-saturated porous cavity heated with a bell-shaped curved bottom	International Journal of Numerical Methods in Heat & Fluid Flow	2022	<u>N. Biswas</u> , N.K. Manna, R.S.R. Gorla and D.K. Mandal	31(12), 3722-3751
Designing of microsink to maximize the thermal performance and minimize the Entropy generation with the role of flow structures	International Journal of Heat and Mass Transfer	2021	A. Kumar, A. Datta, <u>N. Biswas</u> , S. Das,	176, 121421
Buoyancy driven flow in a parallelogrammic enclosure with an obstructive block and magnetic field	Materials Today: Proceedings	2021	H. Mallick, H. Mondal, <u>N. Biswas</u> , N.K. Manna	44(2), 3164-3171
A novel multi-banding application of magnetic field to convective transport system filled with porous medium and hybrid nanofluid	Physica Scripta	2021	N.K. Manna, M.K. Mondal, <u>N. Biswas</u>	96, 065001
Effect of multibanded magnetic field on convective heat transport in linearly heated porous systems filled with hybrid nanofluid	Physics Fluids	2021	N.K. Manna, C. Mondal, <u>N. Biswas</u> , U.K. Sarkar, H.F. Öztop, and N.H. Abu-Hamdeh	33, 053604
Magnetic force vectors as a new visualization tool for MHD convection	International Journal of Thermal Science	2021	N.K. Manna, <u>N. Biswas</u>	167, 107004
Enhanced magnetohydrodynamic thermal convection in a partially-driven cavity packed with a nanofluid-saturated porous medium	Mathematical Methods in the Applied Sciences, doi: 10.1002/mma.7280	2021	M.K. Mondal, <u>N. Biswas</u> , N.K. Manna, A. J. Chamkha,	1-22
Multiplicity of solution for natural convective heat transfer and entropy generation in a semi-elliptical enclosure	Physics of Fluids	2021	U.K. Sarkar, <u>N. Biswas</u> , H. F. Öztop,	33, 013606

<b>Title of the paper</b>	<b>Journal of publication</b>	<b>Year</b>	<b>Role</b>	<b>Volume No. – Page</b>
Heat transfer enhancement and optimization of microchannel heat sink by adopting various shape of ribs: an application of Multi Objective Particle Swarm Optimization (MOPSO) algorithm	Journal of Thermal Analysis and Calorimetry	2021	A. Datta, S. Sah, A. Majumder, <b>N. Biswas</b> , D. Sanyal,	146, 2681–2697
Exact solutions of fluid flow in an axially oscillating cylindrical pipe and annulus	SN Applied Sciences.	2021	U.K. Sarkar, <b>N. Biswas</b>	3:339, 1 – 14.
Magneto-hydrodynamic bioconvection of oxytactic microorganisms in porous media saturated with Cu-water nanofluid	International Journal of Numerical Methods in Heat & Fluid Flow, doi. <a href="https://doi.org/10.1108/HFF-08-2020-0538">10.1108/HFF-08-2020-0538</a> .	2021	<b>N. Biswas</b> , N.K. Manna, R.S.R. Gorla and D.K. Mandal,	31 (11), 3461-3489
Thermo-bioconvection of oxytactic microorganisms in porous media in the presence of magnetic field	International Journal of Numerical Methods in Heat & Fluid Flow	2021	<b>N. Biswas</b> , A. Datta, N. K. Manna, R.S.R. Gorla and D. K. Mandal,	31(5), 1638-1661
Magneto-hydrodynamic thermal convection of Cu–Al <sub>2</sub> O <sub>3</sub> /water hybrid nanofluid saturated porous media subjected to half-sinusoidal non-uniform heating	Journal of Thermal Analysis and Calorimetry	2021	<b>N. Biswas</b> , U. K. Sarkar, A. J. Chamkha, N.K. Manna,	143, 1727–1753
Effects of half-sinusoidal nonuniform heating during MHD thermal convection in Cu–Al <sub>2</sub> O <sub>3</sub> /water hybrid nanofluid saturated with porous media	Journal of Thermal Analysis and Calorimetry	2021	<b>N. Biswas</b> , N.K. Manna, A. J. Chamkha	143, 1665–1688
Role of aspiration to enhance MHD convection in protruded heater cavity	Progress in Computational Fluid Dynamics	2020	<b>N. Biswas</b> , N. K. Manna, A. Datta, D. K. Mandal, A. C. Benim,	20:6, 363–378
Heat transfer enhancement and optimization of microchannel heat sink by adopting various shape of ribs: an application of Multi Objective Particle Swarm Optimization (MOPSO) algorithm	Journal of Thermal Analysis and Calorimetry	2021	A. Datta, S. Sah, A. Majumder, <b>N. Biswas</b> , D. Sanyal	146, 2681–2697
The role of flow structures on the	Journal of	2020	A. Datta, D.	<b>13</b> (2),

Title of the paper	Journal of publication	Year	Role	Volume No. – Page
thermal performance of microchannels with wall features	Thermal Science and Engineering Application		Debbarma, <u>N. Biswas</u> , D. Sanyal, A. K. Das,	001000-1–11.

### Books Published

None.

### Awards (2)

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
Nirmalendu Biswas	<i>INAE Fellowship 2021-2022</i>	INAE	IITKGP
Nirmalendu Biswas	Best Paper Award for “ <i>Impact of linearly varying heating temperature profiles on nanofluidic thermal convection in an enclosure</i> ”	4th International Conference on Advances in Mechanical Engineering (ICAME 2022)	SRM Institute of Science and Technology Tamil Nadu, India

### Ph.D. Thesis Guidance (4)

Name of The Scholar	Title Of The Thesis	Co-Supervisor	Status	Year
Abhinav Saha	Constraint-based Analysis for Comparison of Thermal Performance in Various Buoyancy-driven Enclosures	Dr. NirmalK. Manna, Dr. Koushik Ghosh,	Ongoing	2023
Pratik Roy	Analysis of thermal transport phenomena for magnetic hyperthermia in tissues	Dr. Ranjan Ganguly	Ongoing	2023
Anjan Nandi	Analysis and performance improvement of PCM-based latent heat energy storage (LHES) using different hybrid methods	-	Ongoing	2023
Deepanjan Das	Electric field mediated Transport of Droplets through Micro-confinement	-	Ongoing	2023

### MASTER Thesis Guidance (3)

Name of The Scholar	Title Of The Thesis	Co-Supervisor	Year
Md Motiur Rahaman	Magneto-hydrodynamic mixed convection of nanofluid flow in a grooved channel cavity: a numerical study	Prof. Apurba K. Santra	2022
Chandan Kumar Yadav	Numerical study of double diffusive mixed convective phenomena in a square enclosure	Prof. Nirmal K. Manna	2022
Ujjwal Kumar Singh	Numerical study of Magnetic Hyperthermia in Tissue	Prof. Ranjan Ganguly, Prof. Apurba K. Santra	2022

### Project Works (6)

Project Title	Worked As	Funding Agency	Amount	Duration	Period
Investigation of nanoparticle-enhanced phase change materials (NePCM) for solar thermal energy storage application	Principal Investigator	SRG (SERB)	20.0432 lakh	2 years	2021-2023

### Invited Lectures

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Nirmalendu Biswas	Invited Talk	Workshop on "Enhanced Thermal Energy Transport"	Organized by Dr. B.C. Roy Engineering College, Durgapur	10 <sup>th</sup> & 11 <sup>th</sup> February, 2022

### Orientation/ Refresher / QIP Course attended/ Organized

Title of the Course	Name of the Coordinator(s)	Place	Date
Renewable Energy & its Digital Translation	Prof. Prithwiraj Purkait Dr. Nirmalendu Biswas	Power Engg. Dept. JU (Online)	2nd March - 15th March, 2022

### Seminar/ Conference/ Workshop Presented

Name of the Teacher	Title of the Paper	Name of the Conference / Seminar	Place	Duration
N. Biswas	Hybrid Nanofluid Based MHD Thermogravitationa	26 <sup>th</sup> National and 4 <sup>th</sup> International ISHMT-ASTFE Heat and Mass	IIT Madras, Tamil Nadu, India,	December 17-20, 2021,

	I Convection in a Porous Cavity Heated Linearly	Transfer Conference, Paper no. IHMTC2021-138, pp. 1-7		
--	---	---	--	--

### **Consultancy Work/ Testing**

<b>Work Title</b>	<b>Organization Name</b>	<b>Amount</b>	<b>Year</b>
Performance test of 6×0.75 MW Miyagam Branch Canal (MBC) at Gujarat under Sardar Sarovar Narmada Nigam Ltd.	P & R Infrastructure Ltd., Chandigarh-160036	-	2023
Performance test of 3×11.25 MW Hydel Power Plant at Dhakrani, Uttarakhand	Flovel Energy Pvt. Ltd., Faridabad, Haryana, 121003	-	2021

### **Other Notable Activity**

None.