

Curriculum Vitae



1. Name : KAJAL KUMAR MONDAL

2. (i) Address for Communication:

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DESHBANDHUPARA, SILIGURI, PIN 734004, WEST BENGAL

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3. Date of Birth: 09/09/1974

4. Educational Qualification: M.Sc., P.G.D.C.S.A., Ph.D.

5. (i) Name of the Ph. D. supervisor: Prof. (Dr.) B. S. Mazumder

Physics and Applied Mathematics Unit, Indian Statistical Institute, Kolkata

(ii) The Title of the Thesis: “MASS TRANSPORT PHENOMENA IN STEADY AND
UNSTEADY FLOWS”

6. Teaching and research experience:

Employer	Position held	Place of work	Duration	Nature of work
CSIR, Govt. of India	JRF	ISI, Kolkata	07.08.2000 – 31.08.2002	Research work for Ph.D.
CSIR, Govt. of India	SRF	ISI, Kolkata	01.09.2002 – 10.06.2003	Research work for Ph.D.
Alipurduar College, Alipurduar, West Bengal	Assistant Professor (AGP – 8000/-)	Department of Mathematics, Alipurduar College, Jalpaiguri PIN – 736 122 West Bengal	11.06.2003 – 11.05.2015	Teaching Mathematics at B.Sc. (Honours) level
Islampur College, Uttar Dinajpur, West Bengal	Associate Professor (AGP – 9000/-)	Department of Mathematics, Islampur College, Uttar Dinajpur, PIN – 733 202 West Bengal	12.05.2015 – 31.10.2017	Teaching Mathematics at B.Sc. (Honours) level

Cooch Behar Panchanan Barma University, Cooch Behar, West Bengal	Associate Professor (AGP – 9000/-)	Department of Mathematics, Cooch Behar Panchanan Barma University, Cooch Behar, PIN – 736101 West Bengal	01.11.2017 – 10.06.2018	Teaching Mathematics at M.Sc. level and guiding Ph.D. students
Cooch Behar Panchanan Barma University, Cooch Behar, West Bengal	Professor (AGP – 10000/-)	Department of Mathematics, Cooch Behar Panchanan Barma University, Cooch Behar, PIN – 736101 West Bengal	11.06.2018 – Till date	Teaching Mathematics at M.Sc. level and guiding Ph.D. students

7. Post Doctoral Research Experience:

Name of the institution	Designation & Scale of pay	Name of the post	Nature of Assignment	Duration From – To
National University of Ireland, Galway, Ireland	BOYSCAST Fellow \$ 3000 per month (DST grant)	BOYSCAST Fellow	Post Doctoral Research	08.07.2009 - 07.07.2010

8. Fields of Specialization under the Subject/Discipline:

- (a) Computational and Theoretical Fluid Dynamics (Ph. D., Post Doc. & current research work)
- (b) MHD and Plasma Mechanics (M.Sc. & current research work)

9. Number of registered research scholars: Seven (1 awarded + 6)

Sl. No.	Name of the Student	Date of Registration	Supervisor	Co-supervisor	Status of the Thesis
1.	Niranjan Paul	28.11.2016	Prof. Prasanta Chatterjee	Dr. Kajal Kumar Mondal	Awarded on 15.06.2022
2.	Nanda Poddar (UGC - SRF)	19.09.2019	Dr. Kajal Kumar Mondal	-----	Will submit by November, 2022

3.	Subham Dhar (CSIR – SRF)	19.09.2019	Dr. Kajal Kumar Mondal	-----	Will submit by November, 2022
4.	Ashim Roy	19.09.2019	Dr. Santanu Raut	Dr. Kajal Kumar Mondal	Will submit by September, 2022
5.	Anindya Paul	19.09.2019	Dr. Kajal Kumar Mondal	Prof. Prasanta Chatterjee	Ongoing
6.	Satyajit Sarkar		Dr. Kajal Kumar Mondal	Dr. Asit Saha	Ongoing
7.	Gourab Saha (INSPIRE)		Dr. Kajal Kumar Mondal	-----	Ongoing

10. Honours and Awards received:

i) Qualified for JRF in the CSIR/UGC NET in 1999 and received the Fellowship from Council of Scientific and Industrial Research (CSIR), New Delhi as JRF and SRF.

ii) Awarded BOYSCAST (Better Opportunities for Young Scientists in Chosen Areas of Science and Technology) Fellowship by the Department of Science and Technology, Govt. of India in 2008 – 2009 for pursuing Post-Doctoral research work in the School of Mathematics, Statistics and Applied Mathematics, National University of Ireland, Galway, Ireland.

11. Research, Publications and Academic Contributions:

A. Published/Accepted papers in journals:

Sl. No	Title with Author(s)	Journal Name	Date of Publication with DOI
1.	On solute dispersion in an oscillatory magneto-hydrodynamics porous medium flow under the effect of heterogeneous and bulk chemical reaction <i>Nanda Poddar, Gourab Saha, Subham Dhar, Kajal Kumar Mondal*</i>	Physics of Fluids (AIP – SCOPUS, SCI)	https://doi.org/10.1063/5.0101603 Published online: 04.08.2022
2.	Multi-scale analysis for transport of fine settling particles through an ice-covered channel in a laminar flow condition <i>Subham Dhar, Nanda Poddar, B. S. Mazumder, Kajal Kumar Mondal*</i>	International Journal of Sediment Research (Elsevier –	https://doi.org/10.1016/j.ijsrc.2022.06.001 Published online: 09.06.2022

		SCOPUS, SCI)	
3.	Coexisting wave features and various nonlinear waves for Schrödinger equation in superthermal dusty plasma <i>Satyajit Sarkar, Punam Kumari Prasad, Asit Saha*, Kajal Kumar Mondal</i>	Physica Scripta (IOP – SCOPUS, SCI)	<i>Phys. Scr.</i> 97 045602 Published online: 28.02.2022
4.	Influence of External Periodic Force On Ion Acoustic Waves in a Magnetized Dusty Plasma Through Forced KP Equation and Modified Forced KP Equation <i>Ashim Roy, Kajal Kumar Mondal, Prasanta Chatterjee, Santanu Raut*</i>	Brazilian Journal of Physics (Springer – SCOPUS, SCI)	https://doi.org/10.1007/s13538-021-01038-8 Published online: 25.02.2022
5.	Multi-scale approach to analyze the dispersion of solute under the influence of homogeneous and inhomogeneous reactions through a channel <i>Debabrata Das, Nanda Poddar, Subham Dhar, Rishi Raj Kairi, Kajal Kumar Mondal*</i>	International Communications in Heat and Mass Transfer (Elsevier - SCOPUS, SCI)	https://doi.org/10.1016/j.icheatmasstransfer.2021.105709 Accepted for publication: 10.11.2021
6.	Non-stationary Solitary Wave Solution for Damped Forced Kadomtsev–Petviashvili Equation in a Magnetized Dusty Plasma with q-Nonextensive Velocity Distributed Electron <i>Santanu Raut, Ashim Roy, Kajal Kumar Mondal, Prasanta Chatterjee, Naresh M. Chadha*</i>	International Journal of Applied and Computational Mathematics (Springer - SCOPUS)	https://doi.org/10.1007/s40819-021-01168-2 Published online: 01.11.2021
7.	On dispersion of solute in a hydromagnetic flow between two parallel plates with boundary absorption <i>Subham Dhar, Nanda Poddar, Kajal Kumar Mondal, Bijoy Singha Mazumder*</i>	Physics of Fluids (AIP - SCOPUS, SCI)	<i>Phys. Fluids</i> 33 , 083609 (2021); doi: 10.1063/5.0060404 Published online: 17.08.2021
8.	Ion-neutral collisional effect on solitary waves in weakly ionized plasma with Cairns-Gurevich distribution of electrons <i>Niranjana Paul*, Rustam Ali, Kajal Kumar Mondal, Prasanta Chatterjee</i>	International Journal of Applied and Computational Mathematics (Springer - SCOPUS)	https://doi.org/10.1007/s40819-021-01113-3 Published online: 04.08.2021
9.	Semi-analytical study on environmental dispersion of settling particles in a width-independent wetland flow <i>Nanda Poddar, Susmita Das, Subham Dhar, Kajal Kumar Mondal*</i>	Environmental Fluid Mechanics (Springer – SCI,	https://doi.org/10.1007/s10652-021-09809-2

		SCOPUS)	Published online: 12.08.2021
10.	Effects of bulk degradation and boundary absorption on dispersion of contaminant in wetland flow <i>Nanda Poddar, Subham Dhar, Bijoy Singha Mazumder, Rishi Raj Kairi, Kajal Kumar Mondal*</i>	International Journal of Heat and Mass Transfer (Elsevier - SCOPUS, SCI)	https://doi.org/10.1016/j.ijheatmasstransfer.2021.121669 Published online: 02.07.2021
11.	Two-dimensional ion-acoustic solitary waves obliquely propagating in a relativistic rotating magnetized electron-positron-ion plasma in the presence of external periodic force <i>Santanu Raut, Kajal Kumar Mondal, Prasanta Chatterjee, Ashim Roy*</i>	Pramana (Springer – SCOPUS, SCI)	https://doi.org/10.1007/s12043-021-02104-1 Published online: 30.04.2021
12.	An exact analysis of scalar transport in hydromagnetic flow between two parallel plates: a multi-scale approach <i>Nanda Poddar, Subham Dhar, Bijoy Singha Mazumder, Kajal Kumar Mondal*</i>	Proceedings of the Royal Society A (The Royal Society Publishing – SCI, SCOPUS)	https://doi.org/10.1098/rspa.2020.0830 Published online: 21.04.2021
13.	Propagation of dust-ion-acoustic solitary waves for Damped Modified Kadomtsev-Petviashvili-Burgers equation in dusty plasma with a q-nonextensive nonthermal electron velocity distribution <i>Santanu Raut, Kajal Kumar Mondal, Prasanta Chatterjee, Ashim Roy*</i>	SeMA journal (Springer - SCOPUS) Bulletin of the Spanish Society of Applied Mathematics (Springer)	https://doi.org/10.1007/s40324-021-00242-5 Published online: 01.03.2021
14.	Layer-adapted meshes for solute dispersion in steady flow through an annulus with wall absorption: application to a catheterized artery <i>Nanda Poddar, Kajal Kumar Mondal*, Niall Madden</i>	Korea - Australia Rheology Journal (Springer – SCOPUS, SCI)	https://doi.org/10.1007/s13367-021-0002-4 Published online: 27.02.2021
15.	Numerical Study on Dispersion of Fine Settling Particles in a Depth Dominated Wetland Flow	Communications in Nonlinear Science and Numerical	https://doi.org/10.1016/j.cnsns.2021.1057

	<i>S. Dhar, N. Poddar, R.R. Kairi, B.S. Mazumder, K.K. Mondal*</i>	Simulation (Elsevier – SCI, SCOPUS)	07 Published online: 13.01.2021
16.	Analytical solitary wave solution of dust ion acoustic waves in nonextensive plasma in the framework of damped forced Korteweg–de Vries–Burgers equation <i>N Paul*, K K Mondal, R Ali, P Chatterjee</i>	Indian Journal of Physics (Springer- SCOPUS, SCIE)	https://doi.org/10.1007/s12648-020-01929-7 Published online: 19.11.2020
17.	Influences of viscosity and damping on non-stationary ion-acoustic solitary wave solution of Damped Kadomtsev-Petviashvili-Burgers equation in an unmagnetized electron-positron-ion plasma <i>Niranjan Paul*, Kajal K umarMondal, Rustam Ali, Prasanta Chatterjee</i>	Bulletin of the Calcutta Mathematical Society	Bull. Cal. Math. Soc., 112 , (5) 401–416 (2020) Published on on : 07.09.2020
18.	On Dispersion of Solute in Steady Flow Through a Channel with Absorption Boundary: An Application to Sewage Dispersion <i>Kajal Kumar Mondal, Subham Dhar*, Bijoy Singha Mazumder</i>	Theoretical and Computational Fluid Dynamics (Springer – SCI, SCOPUS)	https://doi.org/10.1007/s00162-020-00539-7 Published online: 8 July 2020
19.	Propagation of ion-acoustic solitary wave solution for damped forced Zakharov Kuznetsov equation in a relativistic rotating magnetized electron-positron-ion plasma <i>Kajal Kumar Mondal, Ashim Roy, Prasanta Chatterjee, Santanu Raut*</i>	International Journal of Applied and Computational Mathematics (Springer - SCOPUS)	https://doi.org/10.1007/s40819-020-0801-1 Published online: 3 April 2020
20.	Signature of chaos and mutistability in a Thomas-Fermi plasma <i>Asit Saha, Satyajit Sarkar, Santo Banerjee*, Kajal Kumar Mondal</i>	The European Physical Journal Special Topics (Springer – SCI, SCOPUS)	https://doi.org/10.1140/epjst/e2020-900237-2 Published online: 26.03.2020
21.	Analytical solitary wave solution of the dust ion acoustic waves for the damped forced modified Korteweg-de Vries equation in q-nonextensive plasmas Laxmikanta Mandi ¹ , Kajal Kumar Mondal ² , and Prasanta Chatterjee ^{1,a}	The European Physical Journal Special Topics (Springer - SCI, SCOPUS)	https://doi.org/10.1140/epjst/e2019-900047-4 Published online: 06.12.2019

22.	Bifurcation Analysis of Ion-Acoustic Super periodic Waves in Dense Plasmas <i>Punam Kumari Prasad, Satyajit Sarkar, Asit Saha*, Kajal Kumar Mondal</i>	Brazillian Journal of Physics (Springer – SCOPUS, SCI)	https://doi.org/10.1007/s13538-019-00697-y Published online: 12.08. 2019
23.	Effect of Dust Ion Collision on Dust Ion Acoustic Solitary Waves for Nonextensive Plasmas in the Framework of Damped Korteweg–de Vries–Burgers Equation <i>Niranjana Paul*, Kajal Kumar Mondal, Prasanta Chatterjee</i>	Z. Naturforsch A (DE GRUYTER – SCI, SCOPUS)	https://doi.org/10.1515/zna-2018-0519 Published online: 22.05.2019
24.	Dispersion of fine settling particles from an elevated line-source in an oscillatory turbulent flow <i>Kajal Kumar Mondal, B.S. Mazumder*</i>	European Journal of Mechanics – B/Fluids (Elsevier - SCOPUS, SCI)	0997-7546 Vol. 27, pp. 707-725, 2008
25.	On dispersion of settling particles from an elevated source in an open-channel flow <i>Kajal Kumar Mondal, B.S. Mazumder*</i>	Journal of Computational and Applied Mathematics (Elsevier – SCI, SCOPUS)	0377-0427 Vol. 193, pp. 22-37, 2006
26.	On the solute dispersion in a pipe of annular cross-section with absorption boundary <i>Kajal Kumar Mondal, B.S. Mazumder*</i>	Z. Angew. Math. Mech. (Wiley – SCOPUS, WOS)	0044-2267 Vol. 85(6),pp.422-430, 2005
27.	On solute transport in oscillatory flow through an annular pipe with a reactive wall and application to a catheterized artery <i>B.S. Mazumder*, Kajal Kumar Mondal</i>	Quarterly Journal of Mechanics and Applied Mathematics (Oxford - SCI)	0033-5614 Vol. 58(3), pp. 349-365, 2005
28.	On solute dispersion in pulsatile flow through a channel with absorbing walls <i>Kajal Kumar Mondal, B.S. Mazumder*</i>	International Journal of Non-linear Mechanics (Elsevier – SCI)	0020-7462 Vol. 40, pp. 69-81, 2005

B (i) Articles/Chapters published in Books:

Sl.No	Title with page numbers	Book title, Editor & Publisher	ISBN/ISSN No
1.	Effect of reversible reaction on concentration distribution of solute in a Couette flow <i>Nanda Poddar, Subham Dhar, Kajal Kumar Mondal</i>	Nonlinear Dynamics and Applications Springer, 2022	2213-8684 (Accepted)
2.	An analytical approach to study the environmental transport of fine settling particles in a wetland flow <i>Subham Dhar, Nanda Poddar, Kajal Kumar Mondal</i>	Nonlinear Dynamics and Applications Springer, 2022	2213-8684 (Accepted)
3.	Analysis of Solute Dispersion through an Open Channel under the Influence of Suction or Injection <i>Gourab Saha, Nanda Poddar, Subham Dhar, Kajal Kumar Mondal</i>	Nonlinear Dynamics and Applications Springer, 2022	2213-8684 (Accepted)
4.	Effects of slip velocity and bed absorption on transport coefficient in a wetland flow <i>Debabrata Das, Subham Dhar, Nanda Poddar, Rishi Raj Kairi, Kajal Kumar Mondal</i>	Nonlinear Dynamics and Applications Springer, 2022	2213-8684 (Accepted)
5.	Dust-ion collisional and periodic forcing effects on solitary wave in a plasma with Cairns-Gurevich electron distribution <i>Anindya Paul, Niranjana Paul, Kajal Kumar Mondal, Prasanta Chatterjee</i>	Nonlinear Dynamics and Applications Springer, 2022	2213-8684 (Accepted)
6.	On transport phenomena of solute through a channel with an inclined magnetic field <i>Susmita Das, Kajal Kumar Mondal</i>	Nonlinear Dynamics and Applications Springer, 2022	2213-8684 (Accepted)
7.	Analytical Solution of a Time-Fractional Damped Gardner Equation Arising from a Collisional Effect on Dust-ion-acoustic Waves in a Dusty Plasma with Bi-Maxwellian Electrons <i>Naresh M. Chadha, Santanu Raut, Kajal Kumar Mondal, Shruti Tomar</i>	Handbook of Fractional Calculus for Engineering and Science Chapman and Hall/CRC, 2022	9781003263517
8.	Application of finite element method in steady transport processes <i>Kajal Kumar Mondal</i>	Trends and developments in science, social science and humanities, Progressive Publishers, Kolkata, 2016	978-81-8064-231-9

9.	On dispersion of fine settling particles in a turbulent open channel flow: A fitted operator approach <i>Kajal Kumar Mondal</i>	Modern trends in social and basic sciences, Readers Service, Kolkata, India, 2015	978-93-82623-51-9
10.	Improved mathematical and numerical modeling of dispersion of a solute from a continuous source <i>Niall Madden, Kajal Kumar Mondal</i>	Boundary and Interior Layers, computational and Asymptotic Methods, Springer, 2011	978- 3- 642-19664-5

(ii) Full papers in Conference Proceedings :

Sl. No	Title with page number	Details of Conference Publication	ISBN/ISSN
1.	Dynamical properties shock and snoidal waves in a superthermal multi-ion dusty plasma <i>Satyajit Sarkar, Ruchi Thapa, Asit Saha, Kajal Kumar Mondal</i>	Proceedings of the seventh international conference on Mathematics and computing Springer, 2022	DOI: 10.1007/978-981-16-6890-6_70
2.	Near field dispersion of solute in a turbulent open channel flow from continuous elevated sources <i>Kajal Kumar Mondal</i>	Proceedings of the UGC Sponsored State Level Seminar on Recent Advances in Basic Science, 24.09.2016	978-81-931261-6-5
3.	A computational study on resolving layer phenomena for the stationary convection diffusion problems <i>Kajal Kumar Mondal</i>	Proceedings of recent advances in the application of mathematical analysis and computational techniques in applied sciences, 02.12.2011 – 04.12.2011	978-81-909694-2-0
4.	Measurements of turbulent flow over an artificial wave form in an open channel by 3-D Acoustic Doppler Velocimeter <i>B. S. Mazumder, Dibyendu Pal, Koeli Ghosal, Kajal kumar Mondal</i>	Proceedings of Conference on Hydraulics, Water Resources and Ocean Engineering, HYDRO-2003	HYDRO-2003, Indian Society for Hydraulics, Pune

C) Ongoing and Completed Research Projects and Consultancies :

Sl. No	Title	Agency (Funding, Commissioning and/or Collaborating)	Period	Grant(s)/ Amount mobilized (so far) in Rs. (Lakhs)	Whether Principal Investigator/ Co-investigator or Consultant/Quality evaluator
1.	On dispersion phenomena of solute in time independent and time dependent flows: A computational approach (Ongoing, Started on 03.09.2019)	Govt. West Bengal, Department of Higher Education, Science & Technology and Biotechnology	3 Years	7.28 Lakh	Principal Investigator
2.	On Solute Dispersion in Advection Dominated Flows (Completed)	UGC (2017)	2 Years	2.64 Lakh	Principal Investigator
3.	A Computational Study on Solute Transport Phenomena in Convection Dominated Flows (Completed)	UGC (2012)	2 Years	1.63 Lakh	Principal Investigator

d)Conference/Seminar/Workshop paper presentation:

Sl. No.	Title of the Paper presented	Title of Conference / Seminar	Organised by	Whether International / National/State/Regional / University/College level
1.	Dispersion in pulsatile flow through a channel with absorbing walls	National Seminar on Recent Trends in Mathematics (Dec, 2002)	Department of Mathematics, University of Burdwan	National
2.	A computational study of a fluid flow problem featuring an interior layer for near field contamination	National Seminar on Non-Linear Dynamics and Astrophysics (09.10.2010)	Department of Mathematics, NBU & IUCAA Resource Centre, Dept. of Physics, NBU	National
3.	A computational study on resolving layer phenomena for the convection dominated	Indo-US bilateral workshop on	ISI, Kolkata	International

	advection-diffusion problems	Ecological health of rivers (01.11.2010 – 03.11.2010)		
4.	A computational study on resolving layer phenomena for the stationary convection-diffusion problems	National Seminar on Recent Advances in the Application of Mathematical Analysis and Computational Techniques in Applied Sciences (02.12.2011 – 04.12.2011)	Department of Mathematics, Siliguri College, Siliguri	National
5.	Layer adapted meshes for steady-state convection dominated convection-diffusion problems	National Conference on Emerging Trends in Physics of Fluids and Solids (27.02.2013 – 28.02.2013)	Department of Mathematics, Jadavpur University	National
6.	Application of layer adapted meshes on dispersion of fine particles in an turbulent open channel flow	3 rd International Conference on Frontiers of Mathematics and Applications (29.01.2014 – 31.01.2014)	Department of Mathematics, University of Burdwan	International
7.	Numerical modelling of dispersion of suspended particles in an open channel flow: A fitted operator approach	International Conference on Emerging Trends in Applied Mathematics (12.02.2014 – 14.02.2014)	Department of Applied Mathematics, University of Calcutta	International
8.	Dispersion of solute in oscillatory flow through an annular pipe	National Conference on Emerging Trends in Physics of Fluids and Solids (06.03.2014 – 07.03.2014)	Department of Mathematics, Jadavpur University	National

9.	Application of fitted operator method on dispersion of fine particles in an open channel flow	International Conference on Modern Trends in Social and Basic Sciences (27.03.2015 – 28.03.2015)	Alipurduar College, Alipurduar	International
10.	Application of Finite Element Method in Steady Transport Processes	National Seminar on Trends and Developments in Science, Social Science and Humanities (22.08.2015)	IslampurCollege, UttarDinajpur	National
11	Solute transport in oscillatory flow through an annular pipe with a reactive wall	National Seminar on Frontiers in Science and Technology Towards National Development (10.04.2016 – 11.04.2016)	A.B.N. Seal College, Cooch Behar	National
12.	Near field dispersion of solute in a turbulent open channel flow from continuous elevated sources	State Level Seminar on Recent Advances in BasicScience, (24.09.2016)	IslampurCollege, UttarDinajpur	State
13.	Solute dispersion through an annular pipe in steady state convection dominated flows (With Niranjana Paul)	State Level Seminar on Recent Advances in BasicScience, (24.09.2016)	IslampurCollege, UttarDinajpur	State
14.	On steady-state solute dispersion through an annular pipe in convection dominated flows	International Interdisciplinary Seminar on Contemporary Developments in Social and Basic Sciences in Times of Global Crisis (28.03.2017 – 29.03.2017)	Surya SenMahavidyalaya, Siliguri	International

15.	Numerical difficulties and challenges in environment modelling	International Conference on Environmentalism, Globalism and Morality (10.01.2018 – 12.01.2018)	The Institute of Cross-Cultural Studies and Academic Exchange, ELON, EC, USA in collaboration with Alipurduar College, Maynaguri College and Cooch Behar PancnananBarma University	International
16.	On solute dispersion in an oscillatory flow through an annular pipe: Application to a catheterized artery	International Seminar on Changing World, Changing Scenario: Challenges and Developments in Contemporary Times (27.03.2018 – 28.03.2018)	Islampur College, Islampur, Uttar Dinajpur	International
17.	Mass transport phenomena of solute in wetland flows: A numerical approach (Invited talk)	International Conference on Nonlinear Dynamics and Applications (09.03.2022 – 11.03.2022)	Sikkim Manipal Institute of Technology, Rangpo, Sikkim	International

e) Training courses:

Sl.No	Name of the course	Duration	Organized by
1.	Orientation Programme	28 days (06.06.2006 – 03.07.2006)	ASC, University of Burdwan
2.	8 th Annual Workshop on Numerical Methods for Problems with Layer	2 days	Department of Mathematics and Statistics, University of

	Phenomena	(21.01.2010 – 22.01.2010)	Limerick, Limerick, Ireland
3.	Refresher Course in Mathematics (Interdisciplinary)	21 days (04.01.2012 – 24.01.2012)	ASC, University of North Bengal
4.	Refresher Course in Information and Communication Technology (Interdisciplinary)	21 days (26.11.2014 – 16.12.2014)	ASC, University of Burdwan

f) Chaired a session/ Judge in Conference/Seminar/Workshop etc.:

Sl. No.	Acted as	Title of Conference / Seminar	Organised by	Whether International / National/State/Regional / University/College level
1.	Chaired a session	International Interdisciplinary Seminar on Contemporary Developments in Social and Basic Sciences in Times of Global Crisis (28.03.2017 – 29.03.2017)	Surya Sen Mahavidyalaya, Siliguri	International
2.	Judge	2 nd Regional Science & Technology Congress, 2017 (07.12.2017 – 08.12.2017)	Siliguri College Jointly with Department of Higher Education, Science & Technology and Bio Technology, Government of West Bengal	Regional
3,	Chaired a session	International Interdisciplinary Conference on Environment, Peace and Morality: East & West (11.01.2019 – 13.01.2019)	Surya Sen Mahavidyalaya, Siliguri in collaboration with The Institute of Cross-Cultural Studies and Academic Exchange, Burlington, NC, USA	International

4,	Chaired a session	International Seminar on The History of Science & Technology – A Journey From Metal Age to E-Age (12.03.2019)	Alipurduar College, Alipurduar in Collaboration with College of Science and Technology, Royal University of Bhutan	International
5.	Judge	4 th Regional Science & Technology Congress, 2019 (18.12.2019 – 19.12.2019)	Alipurduar College Jointly with Department of Higher Education, Science & Technology and Bio Technology, Government of West Bengal	Regional
6.	Chaired a session	International Interdisciplinary Conference on Cognitive Science, Language and Reality (09.01.2020 – 11.01.2020)	Cooch Behar Panchanan Barma University in collaboration with The Institute of Cross-Cultural Studies and Academic Exchange, Burlington, NC, USA	International
7.	Chaired a session	International Conference on Nonlinear Dynamics and Applications (09.03.2022 – 11.03.2022)	Sikkim Manipal Institute of Technology, Rangpo, Sikkim	International

12. Brief summary of previous and current research work:

During the course of my doctoral studies I investigated problems related to the longitudinal dispersion of passive scalar contaminants in both steady and unsteady flow cases. Laminar and turbulent types of flow through conduits with or without particle settling velocities were considered. Such transport problems occur in a wide range of applications ranging from physiological fluid dynamics to environmental fluid dynamics.

The aim of the work was to conduct a numerical study to understand the basic mechanism of mass transportation in longitudinal direction, and to predict the dispersion coefficient, mean

concentration distribution, iso-lines of concentration in a vertical plane for a given time. The corresponding profiles change their nature in different regimes over a period of time. Standard finite-difference method was used for the modeling purpose and results obtained were tested and verified against the data available in the literature.

One of the significant contributions of my work was to analyze the dispersion phenomena through a catheterized artery with a first-order heterogeneous boundary reaction at the wall.

Followings are the summary of my research work:

- (i) to understand the basic mechanism of mass transport phenomena in steady and unsteady (laminar or turbulent) flows;
- (ii) to provide a numerical framework for the interpretation of contaminant spreading in certain flow geometries;
- (iii) to study how the tracer molecules are depleted or protected by the first order heterogeneous boundary reaction;
- (iv) to determine the dispersion coefficient and axial mean concentration distribution in the longitudinal direction due to the combined action of boundary reaction and the flow oscillation;
- (v) to study the effect of settling velocity of suspended particles on the dispersion process;
- (vi) to understand, how the spreading of suspended particles are influenced by the combined action of steady or oscillatory shear flow, settling velocity and the corresponding eddy diffusivity over the rough bed surface for all time period and to find the iso-concentration lines in the vertical plane.

During my Ph. D. dissertation the main focus was on theoretical aspects of the study. However, I had a hand-on experience to deal with Acoustic Doppler Velocimeter (ADV) and High Speed Video Camera (HSVC) to study turbulent open-channel flow at the Fluvial Mechanics Laboratory, ISI, Kolkata.

I worked as a visiting research fellow in School of Mathematics, Statistics, and Applied Mathematics, National University of Ireland, Galway from 08.07.2009 – 07.07.2010. The one year visit had been funded by Department of Science and Technology (DST) under BOYSCAST Post-Doctoral fellowship scheme. I worked on “Designing certain efficient numerical/qualitative methods for solving differential equations” related to hydrodynamics and solute transportation in the regions of strong tide-induced currents. My supervisor there was Professor Dr. N. Madden, School of Mathematics, Statistics, and Applied Mathematics, National University of Ireland, Galway. The work was being carried out in collaboration with a group of researchers from Marine Modelling Centre, National University of Ireland, Galway, led by Dr. M. Hartnett.

Recently, I am studying the dispersion phenomena of solute in complex flow geometry using analytical methods (Multi scale homogenization technique, Gill-Sankarasubramanian method etc.), semi-analytical methods and also through various numerical approaches. Also, I am exploring my research in the field of plasma mechanics to study the different non-linear phenomena of plasma.