

PERSONAL PROFILE



1. Name of the Teacher : SWATI BARUAH
2. Department : Physics
3. Designation : Associate Professor
4. Email id : swatibaruah@rtuassam.ac.in
5. Contact no. : 7002800425
6. Teaching Experience : 8 years 5 months + 1 years of post doc. (up to 31st December, 2023)

Class	Teaching Experience (years)	Topics
UG	7 years 5 months	Classical Mechanics, Quantum Mechanics, Numerical Methods and computational Techniques, Space, Astrophysics, Plasma Physics, Statistical Mechanics, Thermodynamics, General Mechanics, Special Theory of relativity
PG	8 years	Classical Mechanics, Quantum Mechanics, Numerical Methods and computational Techniques, Plasma Physics, Statistical Mechanics, Special Theory of relativity
PhD Course work	7 years 4 months	Numerical Methods and computational Techniques, General Physics

7. Research area of interest : Physics of Dust Plasma, Study of phase transition and crystal formation under various conditions using Molecular Dynamics (MD) Simulation, Study of linear and nonlinear properties of strongly coupled pair-ion plasmas using MD simulation, Simulation study of non-equilibrium structure formation in multi-ion plasma system.
8. Google Scholar ID : teFjoUAAAAJ&hl
9. Vidwan ID :
10. Academic activities :

a. *Seminar/Conference attended:*

Title of the paper/poster	Name of the seminar/conference	Date and Venue	Organized by	Sponsor (s)
A study of low frequency drift instability in dusty plasma	21st National Symposium on Plasma science and Technology (Plasma-2006)	Dec-2006	Malaviya National Institute of Technology, Jaipur	Plasma Science Society of India
A Study on ionization instability in Dusty Plasma	22nd National Symposium On Plasma Science and Technology (Plasma-2007)	Dec-2007	Institute for Plasma Research, Gandhinagar, Ahmedabad	Plasma Science Society of India
Molecular Dynamics Simulation of Phase	24th National Symposium On	Dec-2009	National Institute of Technology,	Plasma Science Society of India

Transition in Complex Plasma	Plasma Science and Technology (Plasma-2009)		Hamirpur (H P)	
Role of attractive force on dust crystal formation	25th National Symposium on Plasma Science and Technology (Plasma 2010)	Dec-2010	Institute of Advanced Study in Science and Technology Guwahati, Assam	Plasma Science Society of India
Coulomb crystallization of Magnetized Dusty Plasma	25th National Symposium on Plasma Science and Technology (Plasma 2010)	Dec-2010	Institute of Advanced Study in Science and Technology Guwahati, Assam	Plasma Science Society of India
Effects of attractive potentials on Coulomb crystal formation	6th International Conference on the Physics of Dusty Plasmas	2011	Max Planck's Institute, Garmisch-Partenkirchen, Germany	Max Planck's Institute
A Preliminary study using MD simulation of Driven Yukawa system	1st PSSI-Plasma Scholars' Colloquium (PSSI-PSC-2012)	2012	Institute For Plasma Research, Gandhinagar, Gujarat.	Plasma Science Society of India
Statistical Mechanics Of Pure Repulsive And Pure Attractive Yukawa Systems with A Soft Core – A Molecular Dynamics Study	28th National Symposium on Plasma Science & Technology (Plasma 2013)	2013	School of Applied Sciences, KIIT University, Bhubanesar, Odisha	Plasma Science Society of India (PSSI)
Equilibrium properties and Phase transitional study of strongly coupled pair ion plasmas	7th International Conference on the Physics of Dusty Plasmas	2014	Delhi University, New Delhi	Plasma Science Society of India (PSSI)
Study of the effects of the Attractive potentials on Coulomb crystal formation	11th Regional Seminar jointly organized by Solar and Planetary Environment Research Association (SPERA) and Indian Association of Physics Teachers (IAPT)	Oct., 2015	Solar and Planetary Environment Research Association (SPERA) and Indian Association of Physics Teachers (IAPT) in Kadi Sarva Vishwavidyalaya, Gandhinagar	Solar and Planetary Environment Research Association (SPERA) and Indian Association of Physics Teachers (IAPT)
Investigation of Phase Equilibria and	International Conference on Space	Sept., 2015	Department of Physics Govt.	

critical properties of strongly Coupled Pair-ion Plasmas	and Plasma Science (ICSPS-2015)		Vivekanand P. G. College, Maihar, Satna, M.P., India	
A preliminary study of the effect of an external magnetic field in strongly coupled Pair-ion Plasma	One day symposium on “Recent trends in Basic Plasma Research”	March 8, 2019.	Center of Plasma Physics (CPP) –IPR, Guwahati	Plasma Science Society of India (PSSI)
Lane formation in a two-dimensional pair-ion plasma system	12th International conference on plasma science & application (ICPSA2019)	11-14 November, 2019	University of Lucknow	
Lane formation dynamics of externally driven Pair-Ion Plasma particles	National conference on Progresses in Material Science Research (PMSR-2020)	04-06, February, 2020	Department of Physics, Dibrugarh University, Assam	
SPONTANEOUS ORDERING IN LANE FORMATION DYNAMICS OF A 3D PAIR ION PLASMA	27th International Conference on Numerical Simulation of Plasmas (ICNSP2022)	August 30 – September 2, 2022	Nagoya, Japan	
Non-Equilibrium Phase Transitional Study in Field Driven 3D Pair-Ion Plasmas	Achieving Leadership for India in Science and Technology (ALIST 2022)	November 14-16, 2022	Assam Kaziranga University, Jorhat, Assam, and Institute of Frontier science and Application	Assam Kaziranga University, Jorhat, Assam, and Institute of Frontier science and Application

b. *Invited talk delivered:*

Name of the conference/ Workshop etc.	Date	Venue	Organized by	Sponsor
6th Asia-Pacific Conference on Plasma Physics (AAPPS-DPP2022), as e-Conference.	August 21-26, 2022	e-Conference.	AAPPS-DPP	AAPPS-DPP
5th Asia-Pacific Conference on Plasma Physics (AAPPS-DPP2021)	September 26-October 1, 2021	e-Conference.	AAPPS-DPP	AAPPS-DPP
4th Asia-Pacific Conference on Plasma Physics	October 26-31, 2020	e-Conference.	AAPPS-DPP	AAPPS-DPP

(AAPPS-DPP2020)				
11th Regional Seminar	Oct., 2015	Kadi Sarva Vishwavidyalaya, Gandhinagar	jointly organized by Solar and Planetary Environment Research Association (SPERA) and Indian Association of Physics Teachers (IAPT)	Solar and Planetary Environment Research Association (SPERA) and Indian Association of Physics Teachers (IAPT)
International Conference on Space and Plasma Science (ICSPS-2015)	Sept., 2015	Department of Physics Govt. Vivekanand P. G. College, Maihar, Satna, M.P., India	Department of Physics Govt. Vivekanand P. G. College, Maihar, Satna, M.P., India	
Invited talk on “Phase transitional study of strongly coupled pair-ion plasmas”	September, 2014	Indian Institute of Science Education and Research (IISER) Kolkata	Indian Institute of Science Education and Research (IISER) Kolkata	IISER
24th National Symposium on Plasma Science and Technology (Plasma-2009)	Dec-2009	National Institute of Technology, Hamirpur	National Institute of Technology, Hamirpur	Plasma Science Society of India

c. *Workshops/ school attended:*

Name of the Workshop / school	Date	Venue	Organized by	Sponsor
DAE-BRNS sponsored three-day school on Foundations of Plasma Physics and Technology for Young Researchers of North East India	Oct. 30th – 1st Nov., 2009.	Department of Physics, Dibrugarh University, Dibrugarh	Thermal Plasma Processed Materials Laboratory, Department of Physics, Dibrugarh University, Dibrugarh and Power Beam Society of India	Thermal Plasma Processed Materials Laboratory, Department of Physics, Dibrugarh University, Dibrugarh and Power Beam Society of India
Workshop on Recent Trends in Astronomy and Astrophysics	Oct. 21st – 23rd, 2009	Department of Physics, Tezpur University	Department of Physics, Tezpur University	IUCAA, India
A Three Days National Science Academies' Lecture Workshop on NONLINEAR DYNAMICS (ND2011)	April 26th - 28th, 2011	Department of Physics, Tezpur University, Assam	Department of Physics, Tezpur University, Assam	Department of Physics, Tezpur University, Assam

d. *FDP completed:*

FDP details	Date	Venue	Organized by	Sponsor
One week National Level Online Faculty Development Programme On MOODLE Learning Management System	June 25 – July, 1, 2020	J. B. College, Jorhat, Assam	IQAC, J. B. College, Jorhat, Assam, in collaboration with, Spoken Tutorial, IIT, Bombay	IQAC, J. B. College, Jorhat, Assam, in collaboration with, Spoken Tutorial, IIT, Bombay
One week faculty development program on Research Methodology	January 23rd to 28th, 2023	The Assam Kaziranga University, Jorhat	The Assam Kaziranga University in collaboration with Internal Quality Assurance Cell (IQAC)	The Assam Kaziranga University, Jorhat
GIAN course on High Performance Computing Concepts and Practice	8-13 October. 2018	NIT, Calicut	NIT, Calicut	NIT, Calicut

e. *Details of publications in **UGC recognized/Peer reviewed/Indexed journals:***

- Vishal K. Prajapati, **Swati Baruah**, and R. Ganesh, Lane formation in 3D driven pair-ion plasmas: I Parallel External Forcing, *Journal of Plasma Physics* 89, 905890301 (2023).
- Vishal K. Prajapati, **Swati Baruah**, and R. Ganesh, Lane formation in 3D driven pair-ion plasmas: II Non-Parallel External Forcing, *Journal of Plasma Physics* 89, 905890302 (2023).
- **Swati Baruah**, Vishal K. Prajapati and R. Ganesh, Lane dynamics in pair- ion plasmas: effect of obstacle and geometric aspect ratio, *Journal of Plasma Physics* 87, 905870601 (2021).
- **Swati Baruah**, U. Sarma and R. Ganesh, Effect of external magnetic field on lane formation In driven pair- ion plasmas, *Journal of Plasma Physics* 87 (2), 905870202 (2021).
- U. Sarma, **Swati Baruah** and R. Ganesh, Physics, Lane formation in driven pair-ion plasmas, *Plasmas* 27, 012106 (2020).
- **Swati Baruah**, R. Ganesh and K. Avinash, A molecular dynamics study of phase transition in strongly coupled pair- ion plasmas, *Physics Plasmas* 22, 082116 (2015).
- Mahmuda Begum, **Swati Baruah** and Nilakshi Das, Thermodynamic properties of strongly coupled plasma in presence of external magnetic field, *Plasma Physics Reports* 40, 583-590 (2014).
- Nilakshi Das and **Swati Baruah**, Dissipative drift instability in dusty plasm, *AIP Advances* 2, 012113 (2012).
- **Swati Baruah** and Nilakshi Das, Formation of Coulomb crystal in presence of attractive Overlapping Debye sphere potential, *Phys. Plasmas* 18, 093702 (2011).
- **Swati Baruah** and Nilakshi Das, Role of shadowing force in formation of 3D dust crystal, *Physica Scripta* 84, 015507 (2011).
- **Swati Baruah** and Nilakshi Das, The effect of magnetic field on the structure of Coulomb Crystal in Dusty Plasma, *Phys. Plasmas*. 17, 073702-1 (2010).
- **Swati Baruah** and Nilakshi Das, A comparative study between effects of Shadowing potential and ODS on Coulomb Crystal formation, *J. Plasma Phys.* 77, 547- 557 (2010).

- **Swati Baruah** and Nilakshi Das, "Electrostatic drift instability in collisional dusty plasma", *J. Assam Sc. Soc.* 51, 2 (2010)
- f. *Publication of Chapter(s) in Books:*
- **Swati Baruah**, and R. Ganesh, "Progresses in Material Science" **ISBN** 978-93-5473-472-4 (2020). (book chapter)
 - Vishal K Prajapati and **Swati Baruah**, "Effect of obstacle and geometric aspect ratio on Lane dynamics in 2D Pair-ion Plasmas" AkiNik Publications (2022). (book chapter)
- g. *Conference proceeding publication:*
- **Swati Baruah** and Nilakshi Das, Effect of Attractive potential on Coulomb crystal formation, **AIP Conf. Proc.** 1397, 395 (2011). (Conf. Proceeding)
 - Nilakshi Das and **Swati Baruah**, Role of magnetic field on dust crystal formation, **AIP Conf. Proc.** 1397, 451 (2011). (Conf. Proceeding)
 - U. Sarma, **Swati Baruah** and R. Ganesh, Numerical Simulation of Strongly coupled Multi- Ion Plasmas, **ISBN**: 978-93-86947-680, CMP-01, p: 106-109. (2018). (Conf. Proceeding)
- h. *Publication of Books (only those considered for API Score):*
- **Swati Baruah**, "A Study of Low Frequency Drift Mode and Coulomb Solid Formation in Complex Plasma" LAMBERT Academic Publishing **ISBN**:978-3-330-03186-9 (2017) (**book**).
- g. *Patents :*

Name of the Patent	Patent Number	Date of Grant	Granting authority

- h. *Research Projects :*
- (i). Completed

Principal Investigator/ Co-Investigator (s) / Supervisor and Department (s)	Title of the project	Funding Agency	Duration	Amount(Rs.)
Swati Baruah (PI) , Department of Physics, The Assam Kaziranga University. Prof. R. Ganesh (Project Collaborator) , Institute for Plasma Research, Gandhinagar, Gujarat	"A first principle numerical simulation of Strongly Coupled Multi-ion Plasma in the presence of an external magnetic field" , sanctioned no. 39/14/25/2016-BRNS/34428, dated 20/01/2017, revalidation no. No: 39/14/25/2016-BRNS/34014, dated 03/04/2017	Board of Research in Nuclear Sciences (BRNS), Department of Atomic Energy (DAE) Government of India	From 03/04/2017 to 31/04/2021	twenty-three lakh.

Swati Baruah (Supervisor), Department of Physics, Kaziranga University, Jorhat, & Dr. Abu Mohammad Farhad Hussain (collaborator), Associate Professor, Department of Physics, Cotton University, Guwahati, Assam.	“Effect of different capping environments on the structural and optical properties of PBS Nanoparticles & PBS/CDS core/shell nanoparticles” Sanctioned no. ASTEC/S&T/206/2017-18/1887 dated 02/05/2018.	Assam Science Technology and Environment Council (ASTEC) funded project under Student Science Project (SSP) scheme		10,000/- only
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(ii). Ongoing

Principal Investigator/ Co-Investigator (s) / Supervisor and Department (s)	Title of the project	Funding Agency	Duration	Amount(Rs.)
Swati Baruah as Supervisor	“Numerical simulation of Plasma system” under INSPIRE Scheme of DST, No. DST/INSPIRE Fellowship/2019/IF190899, Dated: October 29, 2021	DST, INSPIRE division	5 years or till the submission of thesis of the project student	Around 20 lakhs

i. Number of citations received in the year : 25 since 2018

j. h-index (based on Scopus/Web of science) : 3 since 2018

k. Awards/Fellowship/Recognition at State/National/International level from Government/Recognized bodies :

Name of the Award/Fellowship/Recognition	Conferring agency
Award of INSA Visiting Scientist for the FY 2023-24.	Indian National Science Academy (INSA)
Plasma Science Society of India (PSSI) Research Fellowship for 2008.	Plasma Science Society of India (PSSI)
National Scholarship for the year 2002 by Dibrugarh University, Dibrugarh, Assam.	Dibrugarh University
Second Best Poster award on “A preliminary study of the effect of an external magnetic field in strongly coupled Pair-ion Plasma”, in one day symposium on “Recent trends in Basic Plasma Research” , organized by Center of Plasma Physics (CPP) – IPR, Guwahati, on March 2019.	Center of Plasma Physics (CPP) – IPR, Guwahati
Received Second Best Poster award on “Non-Equilibrium Phase Transitional Study in Field Driven 3D Pair-Ion Plasmas” in Achieving Leadership for India in Science and Technology (ALIST 2022) held during November 2022,	Jointly by the Assam Kaziranga University, Jorhat, Assam, and Institute of Frontier science and Application.

organized jointly by the Assam Kaziranga University, Jorhat, Assam, and Institute of Frontier science and Application.	
Received scholarship from Max-Planck Institute, Germany, in 2011, to perform experimental research work in the field of Complex plasmas. The experiment was a part of a research collaboration between the complex plasma group at Max-Planck Institute, Germany, supervised by Dr. Uwe Konopka and complex plasma group of Department of Physics, Tezpur University, Assam, India	Max-Planck Institute, Germany

1. *Abroad visit:*

Name and address of the institute/ academic society	Purpose	Period
Max-Planck Institute, Germany	To perform experimental research work in the field of Complex plasmas. The experiment was a part of a research collaboration between the complex plasma group at Max-Planck Institute, Germany, supervised by Dr. Uwe Konopka and complex plasma group of Department of Physics, Tezpur University, Assam, India	21 days (May 21 to June 10, 2011)

m. Extension Activities/Outreach programme conducted in collaboration with industry / community / NGOs /through NSS/NCC/Red Cross/ Youth Red Cross etc:

Title of the activity	Organising unit / agency / Collaborating agency	Number of teachers coordinated In the activity	Number of students participated
Coordinated Institute for Plasma Research's (IPR's), Gandhinagar Gujarat, outreach event, conducted in association with Rabindranath Tagore University (RTU), Hojai (Assam), organized an exhibition on Plasma, the fourth state of matter during 18-22 March, 2024	Institute for Plasma Research's (IPR's), Gandhinagar Gujarat, outreach event, conducted in association with Rabindranath Tagore University (RTU), Hojai (Assam),	33	679 visited from various schools & colleges 100 students from RTU trained for exhibition
Appointed as an External Examiner for PG ODD semester Exam, from 6/03/2024 to 8/03/2024, at Department of Physics, Assam University, Silchar.	Assam University, Silchar.	2	16
National Member of Scientific Advisory	Erode Sengunthar	32	100

Committee of International Conference on "Modern Functional Materials and Its Multifunctional Applications (ICMFM-2023)" during 21st - 22nd July, 2023.	Engineering College, Perundurai, Erode		
Advisor of organizing Team of "One Week Faculty Development Program on Scientific Language" organized by Department of Mathematics, The Assam Kaziranga University from 26th April to 2nd May, 2023.	Department of Mathematics, The Assam Kaziranga University	12	50
Associated Member from the Assam Kaziranga University of the local organizing committee of the International Virtual Workshop on Global Seismology and Tectonics (IVWGST-2021), organized by CSIR – NEIST during the month of September 2021.	CSIR – NEIST	40	1200
Associated Member from the Assam Kaziranga University of the local organizing committee of the International Virtual Workshop on Global Seismology and Tectonics (IVWGST-2022), organized by CSIR – NEIST during the month of September 2022.	CSIR – NEIST	40	1100
Special Invitee (Policy Lab. Meeting) for a one-day workshop on 'Women in Sciences: The Indian Perspective' on 30th November, 2022, organized by CSIR-North-East Institute of Science & Technology (CSIR-NEIST), Jorhat in association of Royal Society of Chemistry.	CSIR-North-East Institute of Science & Technology (CSIR-NEIST), Jorhat in association of Royal Society of Chemistry.	50	100
Selected as an Expert of the selection committee meeting for the recruitment of Project Scientist officer at CPP IPR, Guwahati.	CPP IPR, Guwahati	5	35
Selected as an External Expert of the Project Dissertation (UG level) evaluation committee in JB College, Jorhat.	JB college, Jorhat	5	30
Conducted a Topical Session as a Vice Chair in 6th Asia-Pacific Conference on Plasma 6th Asia-Pacific Conference on Plasma Physics (AAPPS-DPP2022), held during August 21-26, 2022, as e-Conference.	Organizer of 6th Asia-Pacific Conference on Plasma Physics	5	50
Organized as Co-ordinator "National Science day 2020 (NSD 2020)" celebration program in School of Basic Sciences, The Assam Kaziranga University, on 28th Feb. 2020.	The Assam Kaziranga University	7	80
Organized as Co-ordinator "National Science day 2022 (NSD 2022)" celebration program in School of Basic Sciences, The Assam Kaziranga University, on 28th Feb. 2022.	The Assam Kaziranga University	8	80-90

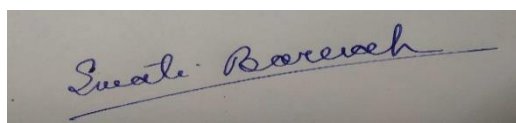
Co-convenor of the One Day National Workshop on “Intellectual Property Rights & Technology Transfer and Their Role in Promotion of Innovations”, organized by School of Basic Sciences, The Assam Kaziranga University, Jorhat, In association with DPIIT IPR Chair, Tezpur University and Innovation Facilitation Centre, NRDC, New Delhi, on 4th March, 2022.	School of Basic Sciences, The Assam Kaziranga University, Jorhat, In association with DPIIT IPR Chair, Tezpur University and Innovation Facilitation Centre, NRDC, New Delhi	20	150
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n. Membership:

- Life member of Plasma Science Society of India, LM-695.
- Life Member of AAPPS-DPP (Division of Plasma Physics Association of Asia Pacific Physical Societies) Member ID = 828.
- Life member of Physical Academy of the North East (PANE), LM-470.

o. Any other achievements:

- **No. of PhD students:** 1 (Pursuing)
Mr. Vishal Kumar Prajapati: Numerical simulation of Plasma system.
- **Post Doc. Experience:** Post Doctoral Fellow (PDF) (from Oct. 2011 to April, 2014) at the Institute for Plasma Research (IPR), Bhat, Gandhinagar, Gujarat, worked with Dr. Rajaraman Ganesh, Professor, IPR, Gandhinagar, in the area of Molecular Dynamics Simulation of charged particle systems in two and three dimensions.
- **Project Fellow:** June 2007-September 2010: Worked in UGC sponsored project work entitled “The study of the charging of dust particles in plasma and dynamics of complex plasma”, at Department of Physics, Tezpur University.



Signature of Teacher in full.....