

Academic profile

Name: Dr. Kamal Saharia

Designation : Associate Professor

Correspondence address: Associate Professor
Department of Physics
Bhattadev University, Bajali, Pathsala
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Academic qualifications

B.Sc.	2002	Cotton College	1 st class with Distinction
MSc	2004	Tezpur University	1 st rank
PhD	2009	Gauhati University	

Title of thesis: Electrostatic parallel electric fields in plasmas.

Field of Research

Theoretical plasma physics: Nonlinear coherent structures, nonlinear phenomenon, particle trapping, Multicomponent plasma, negative ion plasma, Plasma Sheaths, nonextensive particle distribution, kinetic and fluid treatment.

Permanent position held:

1. Assistant Professor, Department of Physics, **NERIST**, Nirjuli, From 22/12/2009 to 21/12/2021.
2. Associate Professor, Department of Physics, **NERIST**, Nirjuli, From 22/12/2021 to 31/01/2024.
3. Associate Professor, Department of Physics, **Bhattadev University**, From 01/02/2024 -

Publications :

	All	Since 2019
<u>Citations</u>	121	90
<u>h-index</u>	6	5
<u>i10-index</u>	4	3

Title	Citation	Year
<input type="checkbox"/> Behavior of collisional sheath in electronegative plasma with q-nonextensive electron distribution	34	2018
DR Borgohain, K Saharia Physics of Plasmas 25 (3)		
<input type="checkbox"/> Behavior of plasma sheath with nonextensively distributed two-temperature electrons and isothermal ions	25	2016
D R Borgohain, K Saharia, K S Goswami Physics of Plasmas 23 (12)		
<input type="checkbox"/> Theory of current-free double layers in plasmas	25	2008
K S Goswami, K Saharia, H Schamel Physics of plasmas 15 (6)		
<input type="checkbox"/> Characteristics of Electronegative Plasma Sheath with q-Nonextensive Electron Distribution	12	2018
D R Borgohain, K Saharia Plasma Physics Reports 44, 137-144		
<input type="checkbox"/> Small amplitude current free double layers in a collisionless plasma	8	2007
K Saharia, K S Goswami Physics of plasmas 14 (6)		
<input type="checkbox"/> Effect of nonextensivity on the characteristics of supersolitons in a two-temperature electron plasma	7	2020
R Kakoti, K Saharia Contributions to Plasma Physics 60 (3), e201900167		

- [Sheath criterion in constant mean free path collisional plasma with two distinct temperature \$q\$ -nonextensive electrons](#) 5 2019
 D R Borgohain, K Saharia
 Indian Journal of Physics 93, 107-114
- [The overtaking interaction of electron acoustic solitary waves in a plasma with hot non-extensive electrons](#) 2 2021
 R Kakoti, K Saharia
 Radiation Effects and Defects in Solids 176 (11-12), 1129-1145
- [One-dimensional Vlasov simulation of parallel electric fields in two-electron population plasma](#) 2 2007
 K Saharia, KS Goswami
 Physics of Plasmas 14 (9)
- [Evolution of electron holes in two electron population plasmas](#) 1 2008
 K Saharia, KS Goswami
 Physics of Plasmas 15 (12)
- [The dust ion acoustic rogue waves in a plasma with Maxwellian negative ions](#) 2022
 R Kakoti, K Saharia
 AIP Conference Proceedings 2357 (1)
- [Study of formation of rogue waves in an electronegative plasma with nonextensive electrons](#) 2022
 R Kakoti, K Saharia
 AIP Conference Proceedings 2357 (1)
- [Effects of adiabaticity of electrons and negative ions on the modulational instability of ion-acoustic waves in electronegative plasma](#) 2020
 R Kakoti, K Saharia
 The European Physical Journal D 74, 1-10

- ☐ [Numerical Study of Mach Number on Solitons in a Warm Negative Ion Plasma With Flat-Topped Electron Distribution](#)

2020

H Borah, R Kakoti, D Rani Borgohain, K Saharia

Proceedings of the 5th International Conference on Computers & Management ...

Other publications:

	Title	Authors as they appear	Edited Booklet/ Book/Chapter in a book/ Conference Proceedings/ other Articles	Publisher (city / country) & Year of Publication	Journal/ Book; ISSN / ISBN No.
1	<i>Characteristics of Collisionless Unmagnetized Plasma Sheath with Two Temperature q-Nonextensive Electrons and Cold Ions.</i>	Dima Rani Borgohain and K. Saharia	International conference on Systems and Processes in Physics, Chemistry and Biology March 1-3, 2018,	Assam University, Silchar, India 2018	ISBN: 978-81-934859-0-3
2	<i>Trapping effect in plasma sheath with q-nonextensive electron distribution,</i>	Dima Rani Borgohain and K. Saharia	6 th Plasma Scholars colloquium 24-26 th Aug. 2018,	SMIT, Sikkim 2018	ISBN: 978-93-86947-68-0).

Research Experience

Name of University /College/Institution	Post held / Designation	From	To
Centre of Plasma Physics, Sonapur	Post Doc fellow (CPP-IPR project) 'Kinetic Vlasov simulation for heat flux and particle transport in Scrap off Layers (SOL) region'.	October 2008	Dec 2009
Centre of Plasma Physics	SRF (ISRO-RESPOND project)	August 2006	Sept 2008
Centre of Plasma Physics	JRF (ISRO-RESPOND	August 2004	July 2006

	project)		
Institute for Plasma Research, Gandhinagar, India	PSSI (Plasma Science Society of India) fellowship	April 2006	June 2006
National Center for Radio Astronomy (NCRA), TIFR, Pune.	Visiting Students Research Program (VSRP-2003)	June 2003	July, 2003

Membership of Learned Bodies / Societies

1. Life member of Plasma Science Society of India (LM-602)
http://www.pssi.in/documents/Member_list_num.pdf
2. Life member of Physics Academy of North East. (LM-0268)
3. Life member Association of Asia Pacific Physical Societies- Division of Plasma Physics

Research Guidance

PhD guided

Sl No	Student name	Thesis title	Year	University / Institute
1	Dima Rani Borgohain	Study of Plasma Sheath in Multicomponent Plasma.	(awarded) 03/05/2019	NERIST, Nirjuli
2	Rajkamal Kakoti	Study of some nonlinear wave phenomena in multicomponent plasma.	(awarded) 28/09/2021	NERIST, Nirjuli

M.Sc. Project guided

So No	Student name	Project title	Year	University/ Institute
1	Group project-1	Plasma Sheath Instability.	2024	Bhattadev University
2	Group project-t2	Review on Plasma Based Water Purification.	2024	Bhattadev University
3	Baikuntha Saikia	Impacts of Ionospheric Ions on Magnetic reconnection and Earth's	2023	NERIST, Nirjuli

		Magnetosphere Dynamics		
4	Vastav Khanikar	Phenomenon of Particle Acceleration in magnetic reconnection	2023	NERIST, Nirjuli
5	Sebika Sonowal	Geomagnetic Storms and Impact on Earth's atmosphere	2023	NERIST, Nirjuli
6	Adom Pangkak	A Study On Dusty Plasma And Application In Space And Industry	2023	NERIST, Nirjuli
7	Harsha Pratim Hazarika	Study of Magnetic Reconnection in Plasma	2022	NERIST, Nirjuli
8	Jumnya Kamdak	A Study on Role of Ionospheric Plasma in Radio Communication	2022	NERIST, Nirjuli
9	Ankur Nath	A Study on Plasma Sheath Evolution, Structure and its Behavior in Electronegative Plasma	2022	NERIST, Nirjuli
10	Ankita Borah	Study of Magnetospheric plasma	2021	NERIST, Nirjuli
11	Hibu Bida	Ionospheric Plasma	2021	NERIST, Nirjuli
12	Kabyashree Gogoi	Langmuir Probe in Plasma Diagnostics	2021	NERIST, Nirjuli
13	Himashree Das	Confinement of Plasma	2021	NERIST, Nirjuli
14	Rimli Boruah	Study of Streaming Instability in Multicomponent Plasma	2020	NERIST, Nirjuli
15	Dharishmita Gogoi	PIC Simulations for plasma studies	2020	NERIST, Nirjuli
16	Kaustov Moni Borah	Review on occurrence of Landau Damping in Different Plasma Systems	2019	NERIST, Nirjuli
17	Menlar Rallen	Study of Helicon Waves in Bounded Plasma	2019	NERIST, Nirjuli
18	Diptimonta Neog	A comparative study of Waves and Instability due to Streaming Electron beam and Positron beam in Plasma	2018	NERIST, Nirjuli
19	Anju Maga	Effect of q-nonextensivity on Debye Shielding in plasma	2016	NERIST, Nirjuli
20	Dipjoy Borah	Simulation study of DC glow discharge in Argon	2015	NERIST, Nirjuli
21	Eruk Libang	Monte-Carlo Method and its Application	2014	NERIST, Nirjuli
22	Tapak Dabi	Study of Formation of Sheath in Plasmas	2010	NERIST, Nirjuli

Invited lectures

SI No	Title / Subject	Organizing Institution	Type of Conference/ Seminar/ Workshop (National/International)	Date of Lecture
1	Plasma Physics: Basics and Applications (INVITED Talk)	Jawaharlal Nehru College, Pasighat Hill-Top, East Siang District-791103 ARUNACHAL PRADESH	3 days National lecture series webinar on the theme "Advancement and innovations in Modern Physics", 7th to 9th August 2020. (National)	August 8 th , 2020
2	Electronics Lab: A quick overview for beginners (INVITED Talk)	NERIST, Nirjuli	VIRTUAL SEMINAR ON EXPERIMENTAL PHYSICS in collaboration with Indian Association of Physics Teachers (IAPT), RC-17, 3-4th October, 2020 (National)	October 3 rd , 2020
3	Plasma Sheath: Effect of q-nonextensive particle distribution. (INVITED Talk)	NERIST, Nirjuli	27th International Conference of International Academy of Physical Sciences (CONIAPS – XXVII) on "Recent Advances in Applied Physics" 26-28 Oct., 2021. (International)	28 Oct, 2021
4	q-Nonextensive particle distribution, Negative ions and Plasma Sheath. (INVITED Talk)	DHSK College, Dibrugarh and Manipur University	NATIONAL CONFERENCE ON PHYSICAL SCIENCE (NCPS-2022) April 29-30, 2022	30 April, 2022
5	Plasma – material interaction and its applications (INVITED Talk)	RGU, Rono Hill, AP	2 nd Indo-Czech Workshop on "Applied Nuclear Physics and Prospects in Material Science" (International)	03 rd Nov 2023
6	Perspective on Plasma Research and Applications. (Plenary Talk)	Bhabanipur Anchalik college, Barpeta, Assam	Physics Frontiers-2024 (National)	4 th July 2024

Recognition/ Award

IOP trusted Reviewer, Gold certificate in NPTEL course,

Conferences/seminars/symposia/workshop/training courses organized as convener/ organizing secretary/chairperson etc.

Sl. No.	Title of the event	Duration (from & to)	Venue	Total participants	Approximate expenditure	Funding agencies
1.	Organizing Secretary 27th International Conference of International Academy of Physical Sciences (CONIAPS – XXVII),	26-28 Oct., 2021	NERIST, Nirjuli (online mode)	More than 100. Paper presented 47	30,000/-	NERIST
2	Coordinator of 'Induction Training' by NITTTR, Kolkata	11 th to 20 th September 2015	NERIST, Nirjuli	38	350000/-	NERIST

Institute / Department responsibility

At NERIST

- (1) Member DPGC, Physics
- (2) Member BoS, Physics
- (3) PG- Electronics Lab in-charge
- (4) Departmental Time Table preparation
- (5) Member NBA committee (Department Representative)
- (6) Member NEE committee (2016-18)
- (7) Member LAC
- (8) NSS Program Officer

At Bhattadev University

1. Member of UG Admission Committee 2024.
2. Member of PhD regulations preparation committee.
3. Member of University Campus beatification committee.

- (9) Member MOOC committee
- (10) DC member (internal & External) of no. of students
- (11) Member of physical stock verification committee
- (12) Member, RACAF-2021 Committee
- (13) Member, SYNERGY-2022 Committee
- (14) Centre Representative NEE exam

Academic activities outside the Institute:

- (1) Reviewer of IOP, IEEE, Springer...
- (2) Invited as judge for zonal level National Children Science Congress of KV (2019)
- (3) External examiner (UG/PG) of RGU