

Personal Profile



Dr. Upamnyu Das
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Date of Birth: : 01 March 1980
Nationality: : Indian
Gender: : Male
Permanent Address : Krishnanagar, (Ward No. 1), Pathsala – 791112, Assam, INDIA

Educational Profile

Ph.D. (Physics) Tezpur University, Tezpur, Assam;
Supervisor: Dr. D. Mohanta
Year of Award: 2011

M.Sc. (Physics) Tezpur University, Tezpur, Assam;
Specialization: Condensed Matter Physics/Electronics

B.Sc(Physics) Gauhati University. Guwahati, Assam
(Bajali College, Pathsala)

H.S. (12th) Assam Higher Secondary Education Council. Assam
(Bajali H.S. School, Pathsala)

H.S.L.C. (10th) Assam Higher Secondary Education Council. Assam
(Bajali H.S. School, Pathsala)

Professional Experience

Assistant Professor, Department of Physics, 6 June 2012 – 5 June 2024
Rajiv Gandhi University, Arunachal Pradesh, INDIA

Associate Professor, Department of Physics, 6 June 2024 – 19 March 2026
Rajiv Gandhi University, Arunachal Pradesh, INDIA

Professor, Department of Physics 20 March 2026 – till date
Bhattadev University, Assam, INDIA

Administrative/Organizational Experience

1. Deputy Director, *Institute of Under Graduate Studies (IUGS)*, Rajiv Gandhi University, Doimukh, Arunachal Pradesh
2. Coordinator, *National Academic Depository (NAD) cell*, Rajiv Gandhi University, Doimukh (22 March 2020 to 10 March 2026)
3. Coordinator, *Academic Bank of Credit (ABC) Cell* Rajiv Gandhi University, Doimukh, (29 Dec 2022 to 19 March 2026)
4. Member, *NEP Task Force (Course structure and curriculum)*. Rajiv Gandhi University, Doimukh (22 May 2023 to till date)
5. **Head of Department (i/c), Department of Physics**, Rajiv Gandhi University, Arunachal Pradesh, INDIA (21 August 2013 to 06 July 2015)
6. Chairmen, Board of Post Graduate Studies (Physics) Rajiv Gandhi University, Arunachal Pradesh, India. (21 August 2013 to 06 July 2015)
7. Member, Board of Under Graduate Studies (Physics) Rajiv Gandhi University, Arunachal Pradesh, India, (21 February 2013 to till date)
8. Grading system and CBCS implementation committee, Rajiv Gandhi University, Arunachal Pradesh, India (2015)
9. Member, BSc B Ed syllabus and implementation committee, Rajiv Gandhi University, March 2016 to till date

Research Interests

- Piezoelectric and triboelectric nanogenerator
- 2D Materials: WS₂/WSe₂
- Metal Oxide nanomaterials and composites
- Physical, Mechanical and optoelectronic properties of material

Current Research status

- Working of Piezoelectric and triboelectric nanogenerator for energy harvesting devices using nanoscale materials 2D Materials: WS₂/WSe₂
- Piezoelectric and triboelectric nanogenerator based sensor for the study of human psychology
- Two-dimensional Material based patch antenna for 6th Generation communication.

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Research Publications

1. Flexible self-powered photodetector with synergic execution of piezoelectric and triboelectric effects in 2D g-C₃N₄ and WS₂ filled PVDF-HFP matrix, *Nano Futures* 9 (3), 035002, **(2025)**
2. SnO-SnO₂ Nanocomposites Based pn Diode: In Situ Synthesis, Characterization and Fabrication of Device for pn Diode Applicability, *Advanced Materials Research* 1179, 123-132 **(2024)**
3. Cotton based self-powered temperature sensor based on Au-augmented WS₂ triboelectric nanogenerator T Chekke, R Narzary, S Ngadong, B Satpati, S Bayan, U Das, *Journal of Electronic Materials* 53 (1), 238-249 **(2023)**
4. Defect-Mediated Self-Powered Ultraviolet Photodetection of Chemically Tailored Tin-Oxide Nanoparticles, R Narzary, T Chekke, S Ngadong, B Satpati, S Bayan, U Das, *Brazilian Journal of Physics* 53 (6), 141 **(2023)**
5. Flexible triboelectric nanogenerators of Au-g-C₃N₄/ZnO hierarchical nanostructures for machine learning enabled body movement detection, *Nanotechnology* 34 (44), 445501 **(2023)**
6. ZnO based triboelectric nanogenerator on textile platform for wearable sweat sensing application, *Nano Energy*, 52 (4), 2685-2694, 2023, 349, 114076, **(2023)**
7. Au decorated ultrathin WS₂-based single-electrode triboelectric nanogenerator for flexible self-powered photodetector, *Sensors and Actuators A: Physical*, 349, pp 114076, **(2023)**
8. Cotton Based Self-Powered Temperature Sensor Based on Au-Augmented WS₂ Triboelectric Nanogenerator, *Journal of Electronic Materials*, 1-12 **(2023)**
9. Structural, Thermal, and Magnetic Characterization Analysis of Synthesized Fe₃O₄-Spinel Ferrite Nanoparticles, *Advanced Materials Research*, Vol 1176, pp- 79-98, **(2023)**
10. Enhanced Study of Magnetic Properties of Polyvinyl Alcohol-Coated Superparamagnetic Iron Oxide Nanoparticles Below Blocking Temperatures, *Powder Metallurgy and Metal Ceramics*, 1-17 **(2023)**
11. 2D WS₂-Based Single-Electrode Triboelectric Nanogenerator for Power Generation and Motion Sensing, *Journal of Electronic Materials*, 52 (4), 2685-2694, **(2023)**

12. Defect-Mediated Self-Powered Ultraviolet Photodetection of Chemically Tailored Tin-Oxide Nanoparticles, *Brazilian Journal of Physics* 53 (6), pp 1-7 (2023)
13. Metal oxide nanocomposite based flexible nanogenerator: synergic effect of light and pressure, *Nanotechnology*, 34 (4), 045403, (2022)
14. Influence of Surface Functional Groups of ZnO Nanorods on the Performance of Cellulose Paper-Based Flexible Triboelectric Nanogenerator. *International Journal of Nanoscience*, 21 (4), 2250034. (2022)
15. Magnetization dynamics of iron oxide super paramagnetic nanoparticles above blocking temperature. *Materials Today: Proceedings* 65, 2636-2644 (2022)
16. Measurement of high disorder state of high-density polyethylene (HDPE) on irradiation by Gamma rays, *Indian Journal of Physics*, 95, 1757 – 1762 (2021)
17. Review on Magnetism in Nanomaterials and Super-paramagnetism, *Selected Progresses in Modern Physics: Proceedings of TiMP*, 303-312 (2021)
18. Evolution Of ZnO Nanoparticles And Nanorods: Aspect Ratio Dependent Optoelectronic Properties, *The European Physical Journal Applied Physics*, 53, 10602 (2011)
19. Peacock Feather Supported Self Assembled Zno Nanostructures For Tuning Photonic Properties, Bayan Sayan, Das Upamanyu, Mohanta Dambarudhar, *The European Physical Journal D*, 1 (2010)
20. Development Of Tb-Doped ZnO Nanorods: Effect of Nitrogen Ion Irradiation On Luminescence And Structural Evolution, *Phys. Status Solidi A*, 1 (2010)
21. ZnS:Cr Nanostructures Building Fractals and Their Properties, *Advance Nanomaterials and Nanotechnology (AIP,USA)*, 26 (2010)
22. Chromium Doped ZnS Nanostructures: Structural and Optical Characteristics, *Advance Nanomaterials and Nanotechnology (AIP,USA)*, , 502 (2009)
23. Effect Of Structure and Concentration of Polymer, Metal Ion And pH Of The Medium On The Fluorescence Characteristics Of Hyperbranched Polyamines, *Journal of Luminescence*, 128, 1917 (2008)
24. Fabrication of ZnO nanorods optoelectronic applications, *Indian Journal of Physics*, 83, 479 (2009)
25. Structural and Optical properties of Ti+11 irradiated nanostructures, , *Indian Journal of Physics*, 82, 163 (2008)

26. Development of transition metal doped ZnS nanostructure and its application to luminescent devices, *Indian Journal of Physics*, 66, (2007)

Book/Book Chapter published

1. ZnS:Cr Nanostructures Building Fractals and Their Properties, *Advance Nanomaterials and Nanotechnology (AIP, USA)*, 26, 2009
2. Chromium Doped ZnS Nanostructures: Structural and Optical Characteristics, *Advance Nanomaterials and Nanotechnology (AIP, USA)*, 502, 2009
3. Development Of Polymer Stabilized Silver Nanoparticles And Their Optical Properties, *Norosa Proceeding on Photonics and Quantum Structures*, Eds. Mohanta Dambarudhar, Norosa Publishing 2010,
4. A study on Iron Oxide (γ - Fe₂O₃) Nanoparticles Synthesized Using Precipitation Method and its Possible Applications, *Evolving Materials and Nanotechnology for Sustainable Development, conference proceeding*, Pp 176, 2021
5. Review on Magnetism in Nanomaterials and Superparamagnetism, *Selected Progresses in Modern Physics (Springer) Volume 265*, 303-312, 2022
6. Magnetization dynamics of iron oxide super paramagnetic nanoparticles above blocking temperature, *Materials Today: Proceedings*, 65, 2636-2644, 2022

Research guidance

Doctor of Philosophy

1. Full name of the Scholar: Bandana Gogoi
Topic of research: Size Selected Transition Metal Oxide Nanoparticles: Synthesis, Characterization and Applications
Year of PhD degree: **AWARDED in 2023**
2. Full name of the Scholar: Ringshar Narzary
Topic of research: Development of Tin Oxide nanostructures and its composites for technological applications
Year of PhD degree: **AWARDED in 2025**
3. Full name of the Scholar: Tani Chekke
Topic of research: Development and characterization of Tungsten disulphide nanostructures and its nanocomposite for potential applications.
Year of PhD degree: **AWARDED in 2025**
4. Full name of the Scholar: Soni Ngadong

Topic of research: Development of metal oxide composite based piezoelectric nanogenerators

Year of PhD degree: **Ongoing**

5. 5. Full name of the Scholar: Tutomoni Borah

Topic of research: Design And Development Of Nanogenerator Based Antenna System For Electronic Communications

Year of PhD degree: **Ongoing**

M.Sc. Dissertation (1 year)

Roll No.	Name of the student	Project Title
14/MPH/001	Mr.Abhijit Nath	Synthesis and Characterization of Silver Nanoparticles
14/MPH/009	Ms. Mery Lollen	A study on Mic Scattering and its applications
14/MPH/010	Ms.Minu Pertin	Design and construction of a experimental setup to study dialectic properties of materials.
14/MPH/016	Mr. Ringshar Narzary	Synthesis of and characterization Zinc-Oxide nanoparticles
15/MPH/001	Ms. Ajita Singh	Study on the development process of silver nanoparticles using different reducing agents
15/MPH/011	Ms. Neelam Kuma	A Study on Magneto-Optical properties of nanomaterials
15/MPH/012	Ms. Neelam Yath	Dielectric of low-cost experimental set-up to study the Di-electric properties of a material.
15/MPH/016	Ms.Pepi Taba	Synthesis of ZnO nanoparticles by physico-chemical method and its characterization
16/Mph/001	Bengia Pape	Synthesis and Characterization of Bimetallic Nanoparticles
16/Mph/002	Bit Das	A Study on Metal Semiconductor Nanocomposite and Its Applications
16/Mph/016	Samiran Hazarika	A Study on Two-Dimensional Transition Metal Dichalcogenides Material and Its Applications
16/Mph/018	Tani Chekke	Development of Metal Oxide Nanocomposites and Its Applications
17MPH001	Anita Chetry	Synthesis and Characterization of Bimetallic Nanoparticles
17MPH009	Karabi Das	Synthesis and Characterization of Iron Oxide Nanoparticles

17MPH013	Mirli Ngomle	A Study on Magneto Resistance properties of Materials and its applications
17MPH019	Tana John Tara	Design and Development of Low-Cost Experimental Kit for Various Physics Experiment. .
17MPH023	Thokchom James Singh	Design and development of Arduino based Four probe Experimental setup for resistivity measurement.
18MPH015	Mousami Barman	“Design and Development of Electrical Properties Measurement System of Materials”
18MPH016	Oyar Paboh	“Determination of Planck’s Constant Using Various Techniques and Error Analysis”
18MPH017	Oyin Pazing	Zinc Oxide Nanostructures and Its Opto- Electronics Properties
18MPH018	Reesa Yun	Development of An Experimental Arrangement for The Study of Sound Detection System of Butterfly Wing
18MPH019	Roshmi Pangyok	Study Of 2D Tungsten Disulphide and Its Possibility to use in Quantum Computing
19 MPH 016	Piyanam Singkai	A study on Triboelectric Properties of Nanomaterials and its applications
19 MPH 017	Prerona Singha	A study on optical properties of Development of ZnO nanoparticle
19 MPH 018	Raja Ram	Synthesis and Characterization of Tin Oxide (SnO ₂) nanostructures
19 MPH 019	Sudipta Gogoi	Synthesis and Characterization of Titanium Dioxide (TiO ₂) nanostructures and its applications
20MPH009	Kabak tele	Synthesis Of Super Paramagnetic Iron Oxide Nanoparticles And Study Of Its Properties”
20 MPH 10	Kangge jamoh	A STUDY Tine Oxide nanostructrues and its application as ges sensor
20 MPH 12	Laxmi doka	A study on biomedical applications of silver nanoparticles
21MPH013	Madhav Baraily	Development off Two-Dimensional Tungsten Disulphide (WS ₂) And Its Characterization
21MPH014	Mido Modi	Synthesis of SnO ₂ Nanostructure Using Hydrothermal Method and its Characterization
21MPH016	Monalisa Bagri	Modelling and Simulation Of Piezoelectric Nanogenerator Using COMSOL Multiphysics

Course/Conference/Workshop organized

1. Workshop on “Introductory Astronomy and Astrophysics” Department of Physics, Rajiv Gandhi University, Arunachal Pradesh, India, 24 – 25 October 2013
2. Inter-University Accelerator Centre (IUAC) Acquaintance Workshop, Department of Physics, Rajiv Gandhi University, Arunachal Pradesh, India, 25 April 2019
3. International Conference on “Advances in Nano-Optoelectronics and Its Application” Department of Physics, Rajiv Gandhi University, Arunachal Pradesh, India, 12th -14th October, 2020.

Presentation in Conference /Workshop

1. International Conference on Transport and Optical Properties of Nanomaterials (ICTOPON-09), an International Conference held at Department of Physics, National Institute of Technology, Rourkella, India during 5 - 8th January 2009
2. Condensed Matter Days 2007, a National Conference held at Department of Physics, National Institute of Technology, Rourkella, India during 29 -31 August 2007
3. Condensed Matter Days 2006, National Conference held at Department of Physics, Tezpur University, Tezpur, India during 29 -31st August 2006
4. Condensed Matter Days 2005, National Conference held at Department of Physics, Behrampur University, Behrampur, India, Country during 3 - 4th August, 2005
5. 7th National Conference in Physics (PANE 2010) a National Conference held at Department of Physics, Manipur University, India during 5-6 October 2010`

Presentation as resource person

1. Webinars on National Education Policy 2020, Rajiv Gandhi University, Arunachal Pradesh, 26th and 28th July, 2023
2. Orientation Program on Operationalization of NEP 2020 (Syllabi and Course Structure) and Academic Bank of Credit, 30th June 2023, Organized by Rajiv Gandhi University
3. Workshop on Semester system in B.Sc. courses of Rajiv Gandhi University, 19th July 2013, Organized by Rajiv Gandhi University

Orientation Course/FDP/MOOC Course/Workshop etc. attended

1. UGC Sponsored Orientation Programme (OP 116), Academic Staff College, Himachal Pradesh University, Himachal Pradesh, 02-06-2014 to 28-06-2014
2. Science Academic Refresher Course in Experimental Physics Dept. of Physics, Kurukshetra University, Kurukshetra 13-09-2015 to 28-09-2015

3. Science Academic Refresher Course in Experimental Physics Dept of Physics, Rajiv Gandhi University 26-03-2018 to 10-04-2018
4. FDP on “E-Content Development and Online Teaching” Teaching Learning Centre, Ramanujan College, University of Delhi 07-02-2021 to 14-02-2021
5. 2-week FDP on Blended Learning: Alternative Dimensions Teaching Learning Centre, Ramanujan College, University of Delhi 12-01-2021 to 29-01-2021
6. 4-week induction/Orientation Programme for faculty in Universities / Colleges/ Institute of Higher Education Teaching Learning Centre, Ramanujan College, University of Delhi 20-06-2022 to 19-07-2022
7. Online Two-Week Refresher Course in Physics Teaching Learning Centre, Ramanujan College, University of Delhi 10-24 April 2022
8. School of nanoscience and nano-biotechnology Indian Institute of Science, Bangalore, Karnataka 1-15th February 2007
9. Materials Characterization and Surface Modification in Research and Industry Using Ion Accelerators, Institute of Physics, Bhubaneswar, India, 31 March - 4th April 2008
10. School of Optical Characterization, Inter University Accelerator Center (IUAC) , New Delhi, 30th June – 2nd July 2008
11. Nation Seminar on Photonics and Quantum Structures (NSPQS -2009) Tezpur University, Napaam, Tezpur 4-6th November 2009
12. Workshop on Nanoscience and Nanotechnology, Tezpur University 3 -4th August, 2005

I hereby declare that the details and information given above are complete and true to the best of my knowledge.

Dr. Upamanyu Das