

# *Curriculum vitae*

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## **Personal profile:**

**Name:** DR JUMISREE SARMAH PATHAK

**Date of Birth:** 01-03-1980

**Nationality:** Indian

**Gender:** Female

**Marital status:** Married

**Languages known:** English, Hindi, Assamese, Gujarati, Bengali

**Current position:** Assistant Professor  
Department of Physics  
Centre of Education  
Indian Institute of Teacher Education  
(A State University established under the aegis of  
Govt of Gujarat)  
Sector 15, Near Mahatma Mandir  
Gandhinagar-382016, Gujarat

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## **Academic Qualifications:**

- Ph.D in Physics from Gauhati University, Assam (2012)
- Master in Science (M.Sc) in Physics from Dibrugarh University, Assam (2003).
- Bachelor of Science (B.Sc) in Physics (Honours), Chemistry and Mathematics from Dibrugarh University, Assam (2001).
- Master of Business Administration (MBA) in Human Resources from Sikkim Manipal university (2010)
- Master of Arts (MA) in Education from Indian Institute of Teacher Education (2023)

**Teaching Experience:**

- Assistant Professor (Physics): Indian Institute of Teacher Education, Gandhinagar, 8<sup>th</sup> August, 2011 till date
- Assistant Professor (Physics): Hansaba College of Engineering and Technology, Siddhpur, Gujarat 2011-2013
- Guest lecturer: Department of Physics, Gauhati university, Guwahati, Assam 2008-2011
- Guest Lecturer: Institute of Science and Technology, Guwahati, Assam 2009
- Lecturer: Don Bosco university, Guwahati, Assam, 2008
- Guest Lecturer: J B College, Jorhat, Assam, 2007-2008
- Lecturer: Crescent Academy, Jorhat, Assam, 2004-2006

**Professional positions:**

- Head, Department of Physics, Indian Institute of Teacher Education, August 2013 to November 2019.
- Head, Department of Placement, Centre of training, Indian Institute of Teacher Education, 2020 till date
- Member, Board of Studies in Physics, Indian Institute of Teacher Education, 2019-23
- Member: Board of Cultural Studies, Indian Institute of Teacher Education, 2020-22, 2022-2024
- Member: Internal Complains Cell, Indian Institute of Teacher Education, 2020-22, 2022-2025
- Chairperson: Anti Sexual Harassment cell against women in workplaces, Indian Institute of Teacher Education, 2014-17
- Co-ordinator, Physics Club, IITE
- Expert Lecture: Department of Physics, Uka Tarsadiya University, Gujarat, Sept 22, 2018
- Represented IITE in The Hindu Education fair, Dubai, UAE, 18<sup>th</sup> to 22<sup>nd</sup> January, 2018.
- Visiting Fellowship: Atomic Spectrsoscopy Insitute, Riga, Latvia and Oulu University, Finland Dec 2014-Jan 2015

### **Working experience:**

1. Atomic absorption and emission Spectroscopic investigations of food items especially spices. Experience in handling the following instruments;
  - X-Ray Fluorescence spectrometer
  - Fourier Transform Infra-red spectrometer
  - Fourier Transform Raman spectrometer
  - Fluorescence spectrometer
2. Spectroscopic study of Laser Produced Plasma
3. Variation of different atmospheric parameters like TEC before Earthquakes using RINEX data

### **Fellowship and Awards:**

- Junior Research Fellowship under UGC-Research Fellowship for Specially Meritorious Students (RFSMS) Scheme, 2008-09.
- Senior Research Fellowship under UGC-Research Fellowship for Specially Meritorious Students (RFSMS) Scheme, 2010-2012.
- Merit Scholarship, Ministry of HRD, Govt of India, 1996-2001.
- 1<sup>st</sup> Prize, Oral Presentation, National Conference on Advances in Physical Sciences for Sustainable Development, October 27, 2022, Department of Physics, IITE, Gandhinagar
- 2<sup>nd</sup> Prize, Oral Presentation, Science Excellence, Gujarat University, 2014
- Best PBL action plan contest, INTEL, June 19, 2015
- Recorded lecture on Optical Fibre Communication at BISAG, 25<sup>th</sup> March, 2020

**PhD thesis:** "Spectroscopic Studies of Chilli (*Capsicum annum* L.) and its seeds, Turmeric (*Curcuma longa* L.) and Black Pepper (*Piper nigrum* L.)". The research work was done under the supervision of Prof Anurup Gohain Barua, Department of Physics, Gauhati University, Guwahati-781014, Assam.

### **Research Publications in peer reviewed journals:**

- Spectroscopic Investigation of Chilli (*Capsicum annum* L.) and its seeds, A. Gohain Barua, S. Hazarika, **J. Sarmah Pathak**, C. Kalita , *International Journal of Food Sciences and Nutrition* **59** (2008) 671-678.

- Spectral Signature of Ripening in Chilli (*Capsicum annum* L.) seeds, A. Gohain Barua, S. Hazarika, **J. Sarmah Pathak**, Sandeep Manhas, *Spectroscopy Letters: An International Journal for Rapid Communication* **43.3** (2010) 163-166.
- Spectroscopic Investigation of Turmeric (*Curcuma longa* L.), **Jumisree Sarmah Pathak** and Anurup Gohain Barua, *Proceedings of National Academy of Science, India (Section of Physical Sciences)*. **81** (III) (2011) 259-264.
- Spectroscopic Investigation of Black Pepper (*Piper nigrum* L.), **Sarmah Pathak Jumisree**, Gohain Barua Anurup, *Journal of Physical Science and Application* **1** (2011) 118-123.
- “Infra red spectroscopy of *Curcuma longa* L. and *Piper nigrum* L”, *International Journal of Emerging Technologies and Applications in Engineering, Technology & Sciences*, **Jumisree Sarmah Pathak**, Special issue (2014), 115-119
- Anomalous Variation in GPS based Total Electron Content (TEC) prior to 6 earthquakes in 2016, **J S Pathak**, K S Yadav, *Mausam: Quarterly Journal of Meteorology, Hydrology and Geophysics* **69**, (3) (2018) 419-426.

#### **Book Chapter:**

- “Dependence of Ion Distribution on Laser Energy in Laser Produced Plasma” ISBN: 978-81-957420-2-8. page nos. 10-17.  
National Conference on Advances in Physical Sciences for Sustainable Development, October 27, 2022, Department of Physics, IITE, Gandhinagar

#### **Papers in conference proceedings:**

- “A Comparative Study between Chevreul’s Colour Theory and Young Helmholtz Trichromatic Theory” National Conference on Engineering Optics & Spectroscopy, April 5-7, 2004, CCS University, Meerut.
- “Vibrational Band analysis of Turmeric (*Curcuma longa* L.)” 55<sup>th</sup> Annual Technical Session, Assam Science Society, February 15, 2010, Gauhati University.
- “Vibrational Band analysis of Black Pepper (*Piper nigrum* L.)” 3<sup>rd</sup> International Conference on Developments in Atomic, Molecular and Nano physics with Applications, 14<sup>th</sup>-16<sup>th</sup> December, 2011, Delhi University.

- “The Spectrum of Corona during Total Solar Eclipse of 22<sup>nd</sup> July 2009 at Dibrugarh” 55th Annual Technical Session, Assam Science Society, 15 February, 2010, Gauhati University.
- “A Study of student’s performance in a Socratic based Interactive Classroom as compared to a Traditional Classroom” PM e Vidya Conference, March 25, 2022, Centre of Research, IITE, Gandhinagar
- "Multilingualism in Early Childhood Care and Education: Strategies and Benefits" ICSSR sponsored National level Seminar on Holistic Child Development in Early Years: Concerns, Challenges and Pathways, 23-24 December, 2022, Children’s University, Gandhinagar, Gujarat.

**Research Project:**

“Anomalous variation in Global Positioning System (GPS), Total Ionospheric Electron Content (TEC), Land and Ocean Parameters prior to some earthquakes.”

Centre of Research, IITE, Sanction date: 15/12/2016

**Published Books:**

- “Spectroscopic Studies of Chilli, Turmeric and Black Pepper”, Lambert Academic Publication, Germany.
- “Management II”, a text book for Gujarat Technological University, Atul Publication.

**Courses taught:**

- Atomic and Molecular Spectroscopy (UG)
- Mathematical Physics (UG)
- Nuclear Physics (UG)
- Elements of Modern Physics (UG)
- Solid State Physics (UG)
- Classical Mechanics (UG)
- Thermodynamics and Statistical Physics (UG)
- Spectroscopic Techniques (PG)
- Advanced Mathematical Physics (PG)
- Nuclear and Particle Physics (PG)

- Laser and Photonics (PG)
- Solid State Physics 2 (PG)
- Atmospheric Physics and Space Science (PG)
- Astronomy and Astrophysics (PG)
- Linear and Non-linear Optics (PG)
- Engineering Physics (B.Tech)
- Management II (B.Tech)

**PG Dissertation:**

Total 19 PG dissertation guidance experience till date.

**Membership:**

- Life Member: Indian Society for Technical Education.
- Life Member: Physics Academy of North-East (PANE)

**Workshops/ Courses attended:**

- Refresher course on Environmental studies & Green Technology, UGC-HRDC, Jai Narain Vyas University, Jodhpur, 08/10/22 to 21/10/2022
- Refresher Course on ICT, UGC-HRDC, Gujarat University, 09/07/18 to 29/07/18
- 24<sup>th</sup> Orientation Programme for University teachers of UGC at Academic Staff College, Sardar Patel University, Vallabh Vidyanar, Gujarat, 12<sup>th</sup> May to 8<sup>th</sup> June, 2014.
- Orientation cum Workshop on Management of Diversity and Equity in University and Colleges, National University of Educational Planning and Administration, March 7-11, 2016, New Delhi.
- Faculty Development Programme on Challenges and Opportunities before Indian Higher Education due to COVID 19, Guru Angad Dev Teaching Learning Centre, PMMMNMTI, University of Delhi, May 2, 2020.
- Faculty Development Programme on E –Content Development & Learning Management System Guru Angad Dev Teaching Learning Centre, PMMMNMTI, University of Delhi, 22<sup>nd</sup> August to 28<sup>th</sup> August, 2020.

- “The study of the anomalous variation in GPS based Total Electron Content (TEC), prior to six earthquakes in 2016.”, Women’s Scientist and Entrepreneurs Conclave, Lucknow, 07/10/18 to 08/10/18
- “Effect of atmospheric pollutants on chlorophyll in different regions of Gandhinagar using spectrophotometry”, 34<sup>th</sup> Gujarat Science Congress, Ganpat University, Feb 8-9, 2020.
- Workshop on Academy for Expertise in Educational Technology, June 15 to June 19, 2015
- 3<sup>rd</sup> International Conference on Developments in Atomic, Molecular and Nano physics with Applications, 14<sup>th</sup>-16<sup>th</sup> December, 2011, Delhi University
- Second DAE-BRNS Symposium on Atomic, Molecular and Optical (AMO) Physics. February 22-25, 2011. Dharwad University, Dharwad, Karnataka.
- Winter School in recent trends in Atoms, Molecules and Lasers, January 9-31, 2011, Benaras Hindu University (Under UGC Networking Programme).
- Topical Conference on interaction of EM Radiation with Atoms, Molecules and Clusters, March 3-6, 2010, Raja Ramanna Centre for Advanced Technology (RRCAT), Indore.
- 55th Annual Technical Session, Assam Science Society, 15 February, 2010, Gauhati University.
- Workshop on C-Programming, 9-13 Nov, 2009, North-East Centre for Research and Development, Indira Gandhi National Open University, Assam.
- Workshop on PC Assembling & Repairing, 23<sup>rd</sup> & 24<sup>th</sup> June, 2009, Department of Physics, Gauhati University.
- UGC sponsored Scholar’s Programme, 9-29th March, 2009 Academic Staff College, Gauhati University
- Conference on Applications of Lasers in Basic and Applied Sciences, February 14-17, 2009, Viswa Bharati, Kolkata
- DST Sponsored SERC School on Laser Spectroscopy and applications in Science and Technology, 3-21 November, 2008, Bhabha Atomic Research Centre, Mumbai.
- 5th Conference of the Physics Academy of the North-East, March 1&2, 2007, Department of Physics, Gauhati University, Assam.

- National Seminar on Science and Sensation, 14th February, 2004, Jorhat Kendriya Mahavidyalaya, Jorhat. Assam.
- National Conference on Engineering Optics & Spectroscopy, April 5-7, 2004, CCS University, Meerut.
- National Symposium on Recent Advances in Electroceramics, April 8, 2004, Meerut College, Meerut.
- 91st Indian Science Congress, January 3-7, 2004, Punjab University, Chandigarh.

**Extra-Curricular Activities:**

- Sangeet Visharad from Bhatkhande Sangeet Vidyapeeth, Lucknow (Indian Classical Music: Vocal)
- Best Singer, JB College, Jorhat, Assam, 2000-01
- Best Quizard, Dibrugarh University, 2003.
- Journal Editor, Gauhati University Research Scholar's Association, 2010.
- Co-ordinator, Youth Festival, IITE, 2016-22
- Team Manager, IITE Youth Festival Team, West Zone Youth Festival, 2015, 16, 17, 23.
- Co-ordinator, Gujarat Vigyan Sammelan, 2022
- Programs aired for Teacher's Tune, IITE's Internet Radio Station.