



Dr. Sasmita Behera

Designation: Guest Faculty

Qualification: M.Sc, Ph.D.

Date of Birth: 12.04.1989

Date of Joining: 01.04.2023

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WOS: <https://www.webofscience.com/wos/author/record/IZE-9213-2023>

Area of Interest

Thin Films and Nanotechnology, Pulsed Laser Deposition, Nonlinear Optics, Thin film Fabrication, Material Characterization, Z-Scan Technique, Raman Spectroscopy

Courses taught

Waves and Optics, Modern Physics, Aberrations in Optics

Career

Guest Faculty (2023-present): Rama Devi Women's University, Bhubaneswar

Teaching Experience

01 years

Research Experience

01 years

Academic Awards

- Recipient of Scholarship under INSPIRE Scheme of Department of Science and Technology, INDIA during INT MSc. from 2007-2012.
- GATE qualified With AIR RANK 602 in PHYSICS Stream with 91.8 percentile in March 2014.
- CSIR-UGC NET qualified with RANK 227 in PHYSICS Stream in December 2013

Publications

List of journal publications

1. **Sasmita Behera** and AlikeKhare, “Influence of substrate temperature and oxygen pressure on the structural and optical properties of polycrystalline BaTiO₃ thin films grown by PLD” *Material Science in Semiconductor processing***140** (2022) 106379.
2. **Sasmita Behera** and AlikeKhare, “Tuning of optical properties of Cu doped BTO thin films fabricated by PLD technique” 2019 Workshop on Recent Advances in Photonics (WRAP), *IEEE conference proceeding*, 2019, pp. 1-3.
3. **Sasmita Behera** and AlikeKhare “Linear and Nonlinear Optical Properties of BaTiO₃ and Ba_{0.5}Sr_{0.5}TiO₃ Thin Films Fabricated by Pulsed Laser Deposition Technique”, International Conference on Optoelectronics and Nanomaterial for Advanced Technology, Cochin University and Technology Kochi, *AIP conference proceeding* 2082, 040006 (2019).
4. **Sasmita Behera** and AlikeKhare, “Characterization of Sapphire (α -Al₂O₃) Thin Film Fabricated by Pulsed Laser Deposition”, International Conference on Fiber Optics and Photonics, *Optical Society of America*, 15 (2016), pp. P1A.

Participation in conferences & seminars

1. **Sasmita Behera** and AlikeKhare, Characterization of sapphire (α -Al₂O₃) thin film fabricated by pulsed laser deposition, “International Conference on Fiber Optics and Photonics” held at IIT Kanpur during 2-6 December 2016.
2. **Sasmita Behera** and AlikeKhare, “Effect of substrate temperature on BaTiO₃ thin films fabricated by pulsed laser deposition technique”, International conference on thin films (**ICTF 2017**), Department of Physics, CSIR-National Physical Laboratory New Delhi, India, 14-17 November 2017.
3. **Sasmita Behera**, Amandeep Kaur, and AlikeKhare, “Structural and optical properties of SrTiO₃ thin films fabricated by pulsed laser deposition technique,” National Conference on Recent Advances in Science and Technology (**NCRAS-2018**), Assam Science and Technology University, Assam, India, 15-17 March 2018.
4. **Sasmita Behera** and AlikeKhare “Effect of Cu nano-layer on linear and nonlinear optical properties of BaTiO₃ thin films”, 5th International Conference on Nanoscience

and Nanotechnology (**ICONN 2019**), SRM Institute of Science and Technology Chennai, India January 28-30, 2019.

5. **Sasmita Behera** and AlikeKhare “Linear and nonlinear optical properties of BaTiO₃ and Ba_{0.5}Sr_{0.5}TiO₃ thin films fabricated by pulsed laser deposition technique”, International Conference on Optoelectronics and Nanomaterial for Advanced Technology (**icONMAT 2019**), Cochin University and Technology Kochi, India January 3-5, 2019.
6. **Sasmita Behera** and AlikeKhare, “Structural and optical properties of Perovskite thin films fabricated by pulsed laser deposition technique” held at **Research Conclave 19**, IIT Guwahati during 14-17 March 2019.
7. **Sasmita Behera** and AlikeKhare, “Composition dependent structural and optical properties of PLD deposited BST thin films,” National Conference on Recent Advances in Science and Technology (**NCRASST-2019**), NEDFi House, NEDFi Convention Center, Dispur-Guwahati, Assam, India, 15-17 May 2019.

Workshops/ Schools

1. TEQIP Symposium to celebrate the 2015 international year of light, 31 October 2015, Organized by Department of Physics, IIT Guwahati.
2. SERB School on “Optical Metrology” held in Tezpur University Assam during 1-21 June 2016.
3. National workshop on “Advanced Probing Technique in TEM” held at Department of Physics, IIT Guwahati during 15-16 February 2016.
4. One- Day Workshop on Vacuum Technology and its Application in Optical Science, 19 August 2017 organized by SPIE student chapter, IIT Guwahati.
5. Technical Education Quality Improvement Programme (TEQIP) short term course on “Nanomaterials and Smart Devices” held at Centre for Educational Technology (CET) IIT Guwahati during 17-21 September 2018.
6. **Sasmita Behera**, and AlikeKhare, “Tuning of optical properties of Cu doped BTO thin films fabricated by PLD Technique” Workshop on Recent Advances in Photonics (**WRAP-2019**) IIT Guwahati during 13-14 December 2019.

Other information(s)

Expertise in Instruments

- ❖ Handling thin film deposition process using **PLD System**
 - Laser {Model: *Quanta-Ray INDI-HG*; Make: *Spectra Physics*}
 - Vacuum system {Make: *EXCEL INSTRUMENTS*}
- ❖ Handling and data analysis via **XRD** {Model: *SmartLab*; Make: *Rigaku*}
- ❖ Handling and data analysis via **AFM** {Model: *Cypher*; Make: *Oxford*}
- ❖ Data analysis using **FESEM** {Model: *Sigma 300*; Make: *Zeiss*}
- ❖ Handling and data analysis via **UV-Visible-NIR** {Model: *Lambda 950*; Make: *Perkin Elmer*}
- ❖ Handling and data analysis using **Micro-laserRaman Spectrometer** {Model: *LabRam HR800*; Make: *Horiba JobinYvon*}

Computer & Software Proficiency

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| ❖ Working knowledge of <i>Windows 7/8/10</i> Operating Systems | ❖ Working knowledge of <i>MS – Word + PowerPoint + Excel</i> |
| ❖ <i>Fullprof Suite</i> (for Rietveld Refinement) | ❖ <i>SCOUT</i> (for UV-Visible spectra analysis) |
| ❖ <i>Gwyddion</i> (for AFM analysis) | ❖ <i>Origin</i> |
| ❖ <i>Adobe Illustrator CS</i> | ❖ <i>ImageJ</i> |
| ❖ <i>LATEX</i> | ❖ <i>Adobe Photoshop</i> |
| ❖ <i>MathType</i> | ❖ <i>C++</i> (basic) |