

**DR. SAYANTAN GUHA**

Assistant Professor

Centre for Data Science,

Institute of Technical Education and Research (ITER),

Siksha 'O' Anusandhan (Deemed to be University)

Bhubaneswar, Odisha 751030, India.

**PERSONAL INFORMATION AND CONTACT DETAILS****Full Name:** Sayantan Guha**Nationality:** Indian**DOB:** May 7, 1992**Gender:** Male**Home address:** Indraprastha Apartment, 1<sup>st</sup> Floor, Flat - 7B, Raghunathpur (E), Tegharia, V.I.P. Road, RAB - 11/B, Kolkata-700059, West Bengal, India.**Work address:** Centre for Data Science, Institute of Technical Education and Research (ITER), Siksha 'O' Anusandhan (Deemed to be University), ITER College Rd, Jagmohan Nagar, Bhubaneswar, Odisha 751030, India.**Phone:** (+91) 8877588864 / (+91) 8240332465**Email:** [gosayantan@gmail.com](mailto:gosayantan@gmail.com) / [sayantanguha.maths@gmail.com](mailto:sayantanguha.maths@gmail.com)**Homepage:** <https://sayantanguhamaths.wixsite.com/sayantan-site>**CAREER OBJECTIVE**

To work in an organization that I can contribute to with my mathematical knowledge and skills, whereby I can responsibly aid the organization to move in a positive direction.

**RESEARCH INTERESTS**

- Applied Mathematics • Partial Differential Equations • Mathematical Modeling • Solid Mechanics • Wave Propagation
- Piezoelectricity • Thermoelasticity • Smart Materials and Structures • Smart fiber-reinforced composites • MEMS/ NEMS

**ACADEMIC EXPERIENCE**

Sl. No.	Position held	Name of the Institute	Duration	
			From	To
1	Assistant Professor	Institute of Technical Education and Research, Siksha 'O' Anusandhan (Deemed to be University)	19.08.2022	Till date

**EDUCATION**

- **Doctor of Philosophy (Ph.D.):** Applied Mathematics from **Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand, India. (2017-2022).** Final viva-voce exam: 20.10.2022  
**Ph.D. Thesis title:** Wave characteristics in fiber-reinforced smart composites and thermoelastic damping & frequency shift of beams with complexities.  
**Supervisor :** Prof. Abhishek Kumar Singh (Associate Professor).
- **Post Graduation (M.Sc.):** Mathematics & Computing from **Indian Institute of Technology (Indian School of Mines), Dhanbad, India. (2014-2016).** OGPA 9.33/10 (First class with Distinction).

M.Sc. Thesis title: **Reflection and transmission of plane waves at an imperfect interface between two dissimilar monoclinic elastic half-spaces: a review.**

Supervisor : **Prof. Sanjeev Anand Sahu (Associate Professor)**

- **Graduation (B.Sc.) Honors:** Mathematics from St. Xavier's College, Kolkata, India (Autonomous) (Calcutta University). **(2011-2014)**. CGPA **6.31/10**.
- **Intermediate (Class 12):** Patha Bhavan (West Bengal Council of Higher Secondary Education). **(2011)**. Total **81%**.
- **Matriculation (Class 10):** South Point High School (West Bengal Board of Secondary Education). **(2009)**. Total **79%**.

## RESEARCH PAPERS

[Indexing and Impact Factor (IF) Source: [Web of Science](#) and Journal Websites]

### 2025

29. Guha, S., Gupta, V., Biswas, M., Mahanty, M., Sarangi, B. P., Haty, A., & Nain, S. (2025). [Acoustic wave behavior in rotating functionally graded piezomagnetic media with impedance boundaries](#). *European Journal of Mechanics-A/Solids*, 105786. **(IF 4.2) (Elsevier) SCIE**
28. Guha, S., Gupta, V., Biswas, M., Singh, A. K., & Barak, M. S. (2025). [Complex wave interactions in graded piezomagnetic materials: a gravity and flexomagnetic perspective](#). *International Journal of Numerical Methods for Heat & Fluid Flow*, 35(4), 1459-1483. **(IF 5.1) (Emerald Group Publishing) SCIE**
27. Singh, A. K., Guha, S., & Maji, A. (2025). [Analysis of thermoelastic damping and frequency shift of nano-scale piezoelectric fiber-reinforced thermoelastic composite beam under single, dual, and three phase-lag models: A comparative approach](#). *Thin-Walled Structures*, 211, 113134. **(IF 6.6) (Elsevier) SCIE**
26. Dholey, B., Alneamy, A., Mistri, K., Guha, S., & Tharwan, M. (2025). [The Influence of SH-wave Propagation in a Tri-layered Composite Structure with Interfacial Imperfections](#). *Journal of Vibration Engineering & Technologies*, 13(2), 197. **(IF 2.4) (Springer Nature) SCIE**
25. Guha, S., & Alneamy, A. (2025). [The Influence of Flexible Support on the Material Properties of Piezothermoelastic Fiber-Reinforced Composite Beam](#). *Journal of Vibration Engineering & Technologies*, 13(2), 1-17. **(IF 2.4) (Springer Nature) SCIE**

### 2024

24. Alneamy, Ayman M., Guha, S., and Tharwan, Mohammed Y. (2024). [Modeling and Analysis of Thermoelastic Damping in a Piezoelectro-Magneto-Thermoelastic Imperfect Flexible Beam](#). *Mathematics*, 12(24), 4011. **(IF 2.2) (MDPI) SCIE**
23. Biswas, M. & Guha, S. (2024). [Influence of dynamic fiber volume fraction on Love wave velocity in PFRC plate imperfectly bonded with piezoelectric-viscoelastic substrate](#). *Acta Mechanica*, 236(1), 321-341. **(IF 2.9) (Springer Nature) SCIE**
22. Singh, A. K., Singh, A. K., Yadav, R. P., & Guha, S. (2024). [Analysis of stress intensity factor for moving Griffith crack in a transversely isotropic strip under punch pressure](#). *Arabian Journal of Geosciences*, 17(11), 1-12. **(Springer Nature)**
21. Kumari, R., Singh, A. K., Kumar, S., & Guha, S. (2024). [Transmission of Lamb wave in a micro-mechanically piezoelectric fiber-reinforced composite plate](#). *Wave Motion*, 128, 103307. **(IF 2.5) (Elsevier) SCIE**

### 2023

20. Guha, S., Singh, A. K., & Singh, S. (2023). [Thermoelastic damping and frequency shift of different micro-scale piezoelectro-magneto-thermoelastic beams](#). *Physica Scripta*, 99(1), 015203. **(IF 2.6) (IOPScience) SCI**
19. Guha, S. & Singh, A. K. (2023) [On-plane waves reflecting at the impedance boundary of an initially stressed micromechanically modeled piezomagnetic fiber-reinforced composite half-space](#). *Mechanics of Advanced Materials and Structures*, 1-18. **(IF 3.6) (Taylor & Francis) SCIE**
18. Singh, A. K., Singh, A. K., Guha, S. & Kumar, D. (2023). [Mathematical analysis on the propagation of Griffith crack in an initially stressed strip subjected to punch pressure](#). *Mechanics Based Design of Structures and Machines*, 52(7), 4133-4151. **(IF 2.9) (Taylor & Francis) SCIE**

17. Nain, S. & **Guha, S.** (2023). [Influence of fiber orientation on reflection and attenuation phenomenon in fiber-reinforced viscoelastic medium](#). *Archive of Applied Mechanics*, 93(7), 2993-3005. (IF 2.5) (Springer Nature) SCIE
- 
- 2022**
16. **Guha, S.** & Singh, A. K. (2022). [Transference of SH waves in a piezoelectric fiber-reinforced composite layered structure employing perfectly matched layer and infinite element techniques coupled with finite elements](#). *Finite Elements in Analysis and Design*, 209, 103814. (IF 3.5) (Elsevier) SCIE
  15. **Guha, S.** & Singh, A. K. (2022). [Frequency shifts and thermoelastic damping in distinct Micro-/Nano-scale piezothermoelastic fiber-reinforced composite beams under three heat conduction models](#). *Journal of Ocean Engineering and Science*. (IF 11.8) (Elsevier) SCIE
  14. Singh, S., Singh, A. K., & **Guha, S.** (2022). [Reflection of plane waves at the stress-free/rigid surface of a micro-mechanically modelled Piezo-Electro-Magnetic Fiber-Reinforced half-space](#). *Waves in Random and Complex Media*, 1-30. (Taylor & Francis)
  13. Singh, A. K., Rajput, P., **Guha, S.**, & Singh, S. (2022). [Propagation characteristics of love-type wave at the electro-mechanical imperfect interface of a piezoelectric fiber-reinforced composite layer overlying a piezoelectric half-space](#). *European Journal of Mechanics-A/Solids*, 93, 104527. (IF 4.2) (Elsevier) SCIE
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- 2021**
12. Singh, A. K., Mahto, S., & **Guha, S.** (2021) [Analysis of plane wave reflection and transmission phenomenon at the interface of two distinct micro-mechanically modeled rotating initially stressed piezomagnetic fiber-reinforced half-spaces](#). *Mechanics of Advanced Materials and Structures*, 1-17. (IF 3.6) (Taylor & Francis) SCIE
  11. Singh, S., Singh, A. K., & **Guha, S.** (2021). [Shear waves in a Piezo-Fiber-Reinforced-Poroelastic composite structure with sandwiched Functionally Graded Buffer Layer: Power Series approach](#). *European Journal of Mechanics-A/Solids*, 92, 104470. (IF 4.2) (Elsevier) SCIE
  10. Singh, A. K., Mahto, S., & **Guha, S.** (2021). [Analysis of plane wave reflection phenomenon from the surface of a micro-mechanically modeled piezomagnetic fiber-reinforced composite half-space](#). *Waves in Random and Complex Media*, 1-22. (Taylor & Francis)
  9. Singh, S., Singh, A. K., & **Guha, S.** (2021). [Impact of interfacial imperfections on the Reflection and Transmission phenomenon of plane waves in a Porous-Piezoelectric model](#). *Applied Mathematical Modelling*, 100, 656-675. (IF 5.1) (Elsevier) SCIE
  8. **Guha, S.** & Singh, A. K. (2021). [Influence of varying fiber volume fractions on plane waves reflecting from the stress-free/rigid surface of a piezoelectric fiber-reinforced composite half-space](#). *Mechanics of Advanced Materials and Structures*, 1-15. (IF 3.6) (Taylor & Francis) SCIE
  7. **Guha, S.**, & Singh, A. K. (2021). [Frequency shifts and thermoelastic damping in different types of Nano-/Micro-scale beams with sandiness and voids under three thermoelasticity theories](#). *Journal of Sound and Vibration*, 510, 116301. (IF 4.9) (Elsevier) SCIE
  6. **Guha, S.**, & Singh, A. K. (2021). [Plane wave reflection/transmission in imperfectly bonded initially stressed rotating piezothermoelastic fiber-reinforced composite half-spaces](#). *European Journal of Mechanics-A/Solids*, 88, 104242. (IF 4.2) (Elsevier) SCIE
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- 2020**
5. **Guha, S.** [On energies carried by reflected waves for incidence of plane wave in a micro-mechanically modeled Piezoelectric Fiber-Reinforced Composite half-space: A fiber volume fraction comparison](#). *Proc. of 65th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM)*, December 9-11, 2020, Gandhi Institute of Technology and Management (GITAM) Hyderabad, India.
  4. Singh, P., Singh, A. K., Chattopadhyay, A., & **Guha, S.** (2020). [Mathematical study on the reflection and refraction phenomena of three-dimensional plane waves in a structure with floating frozen layer](#). *Applied Mathematics and Computation*, 386, 125488. (IF 3.4) (Elsevier) SCIE
  3. **Guha, S.**, & Singh, A. K. (2020). [Effects of Initial Stresses on Reflection phenomenon of plane waves at the free surface of a Rotating Piezothermoelastic Fiber-Reinforced Composite half-space](#). *International Journal of Mechanical Sciences*, 181, 105766. (IF 9.4) (Elsevier) SCIE
  2. Singh, A. K., & **Guha, S.** (2020). [Reflection of plane waves from the surface of a piezothermoelastic fiber-](#)

[reinforced composite half-space](#). *Mechanics of Advanced Materials and Structures*, 28(22), 2370-2382.

(IF 3.6) (Taylor & Francis) SCIE

#### 2019

1. Guha, S., Singh, A. K., & Das, A. (2019). [Analysis on different types of imperfect interfaces between two dissimilar piezothermoelastic half-spaces on reflection and refraction phenomenon of plane waves](#). *Waves in Random and Complex Media*, 31(4), 660-689. (Taylor & Francis)

#### BOOK CHAPTERS

4. Guha, S. and Dev, A. N. (2025). [Love wave propagation in layered piezoelectric structures for sensor-based applications](#). In *Applied Engineering Mathematics: Fluid and Solid Mechanics in Life Science*, edited by Apul Dev and Sayantan Guha, De Gruyter, pp. 1-10.
3. Singh, S., & Guha, S. (2022). [Modeling of SH waves in a functionally graded piezo-poroelastic structure with sensitive coating in presence of point source of disturbance](#). In *Corrosion Mitigation Coatings* (pp. 369-384). De Gruyter.
2. Singh, A. K., & Guha, S. (2022). [Mathematical Study of Reflection and Transmission Phenomenon of Plane Waves at the Interface of Two Dissimilar Initially Stressed Rotating Micro-Mechanically Modeled Piezoelectric Fiber-Reinforced Composite Half-spaces](#). In *Wave Dynamics* (pp. 131-162). World Scientific.
1. Chaki, M. S., Guha, S., & Singh, A. K. (2018, July). [Impact of Rectangular/Parabolic Shaped Irregularity on the Propagation of Shear Horizontal Wave in a Slightly Compressible Layered Structure](#). In *International Conference on Mathematical Modelling and Scientific Computation* (pp. 61-74). Springer, Singapore.

#### BOOKS

1. Dev, A., & Guha, S. (Eds.). (2025). [Applied Engineering Mathematics: Fluid and Solid Mechanics in Life Science](#). De Gruyter.

#### PATENTS

6. Girhepunje, V. G., Janghu, S., Jain, P. A., Rai, A., Guha, S., Das, U., Halder, T., Sherzod, K., Kumawat, R., Shukla, G., Singh, A., Koley, S. (2025). AI Weather Risk Computer Advisor for Farm Operations. **UK Design patent**, Design number: 6476641, Registration date: 01 October 2025, Grant date: 31 October 2025.
5. Das, M. S., Demde, M. K., Gupta, D., Raut, J. S., Jain, P. A., Guha, S., Hazra, A., Choudhury, D., Meetei, O. M., Koley, S., Banerjee, B., Pramanik, S. K. (2025). Hand held crop health predictor data analyser. **UK Design patent**, Design number: 6480021, Registration date: 17 October 2025, Grant date: 27 October 2025.
4. Bhowmick, P., Das, M.S., Guha, S., Singha, S., Manoharan, P.K., Choudhary, B.K., Kundu, A., Mondal, B.K., Barua, R., Koley, S. (2025). Adaptive AI-Driven VR Engine for Personalized Real-Time Immersive Experiences. *Patent and Design Journal (Govt. of India)*, Journal No. 08/2025, page 18458, Application number: 202511009603 A, Filing Date: 05/02/2025, Publication Date: 21/02/2025.
3. Biswas, U., Singha, S., Jain, P. A., Firdaus, N., Guha, S., Thangarasu, N., Pattanayak, A., Mukhopadhyay, J., Mondal, S. D., Chandra, S. (2025). AI-Powered Traffic Management Device. **UK Design patent**, Design number: 6471256, Registration date: 11 September 2025, Grant date: 20 September 2025.

2. Koley, S., Sen, N., Dalui, I., Dutta, P., Singh, P., Mandal, K.K., Chatterjee, A., **Guha, S.**, Mondal, S., Mukherjee, S. (2025). Smart Traffic Signal Pole for Smart Cities. **UK Design patent**, Design number: 6440654, Registration date: 28 April 2025, Grant date: 07 May 2025.
1. Tandon, A., Barua, R., Saha, S., Das, P., Singh, P., **Guha, S.**, Lahe, A.D., Datta, S., Kamble, N.A., Rabade, S.S., Patil, K.S., Banerjee, B. (2025). Adaptive AI-Driven VR Engine for Personalized Real-Time Immersive Experiences. *Patent and Design Journal (Govt. of India)*, Journal No. 08/2025, page 18458, Application number: 202511009603 A, Filing Date: 05/02/2025, Publication Date: 21/02/2025.

## CONFERENCES / WORKSHOPS / WEBINARS

### INVITATIONS

9. **Session Chair: 11th International Conference and 27th Annual Conference on Gwalior Academy of Mathematical Sciences (ICGAMS 2K25)** || MANIT Bhopal || Sept 25-27, 2025.
8. **Session Chair and Session Co-Chair: 4<sup>th</sup> International Conference on Applied Mathematics in Science and Engineering (AMSE – 2025)** || Org. by ITER, Siksha ‘O’ Anusandhan University, Bhubaneswar and Co-org. by NIT, Arunachal Pradesh || Aug 28-30, 2025.
7. **Invited Speaker: 3<sup>rd</sup> International Conference on Recent Trends in Materials Science & Devices 2025 (ICRTMD-2025)** || Department of Physics, JVMGRR College, Charkhi Dadri, Haryana, India and Research Plateau Publishers || 24-26 March, 2025 || Paper: "*Thermoelastic damping in micro-scale piezothermoelastic fiber-reinforced composite clamped beam*".  
Received the “**Best Paper Award**” in Technical Session: ICRTMD 24 [Faculty/Scientist (Invited)].
6. **National Advisory Committee Member and Invited Speaker: International Conference on Recent Trends & Innovations in Mathematics Statistics and Scientific Computing (IC-RTIMSSC-2025)** || Department of Mathematics and Department of Computer Science & Engineering Indira Gandhi University Meerpur, Rewari, HR. India || March 5-6, 2025 || Paper: "*Wave reflections in piezoelectric fiber-reinforced composite half-space*".
5. **Session Chair and Coordinator: 3<sup>rd</sup> International Conference on Applied Mathematics in Science and Engineering (AMSE – 2024)** || Organized by ITER, Siksha ‘O’ Anusandhan University, Bhubaneswar and Co-organized by NIT, Arunachal Pradesh || July 25-27, 2024.
4. **Invited Speaker: International Conference on Composite Materials for Environment Protection & Remediation (ICCMEPR-2024)** (online mode) || Department of Chemistry, G. B. College, Ramgarh VKS University, Ara, Bihar, India & Research Plateau Publishers || July 02-03, 2024 || Paper: "*Love wave propagation in layered piezoelectric structures for sensor based applications*".  
Received the “**Best Paper Award**” in Technical Session 02 [Faculty/Scientist (Invited) Speakers], themed “**Emerging Smart and Responsive Materials / Energy Applications of Materials**”.
3. **Keynote Speaker: 12<sup>th</sup> International Conference on Mechanical Science and Engineering (ICMSE 2024)** (online mode) || IAMSET (International Association of Management Science and Engineering Technology) || June 27, 2024 || Paper: "*Wave Reflection Characteristics in a Micro-mechanically Modeled Piezoelectric Fiber-reinforced Composite Half-space*".
2. **Keynote Speaker: International Conference on Mathematical Innovations and Modelling (ICMIM2024)** || PG Department of Mathematics, Sri Sarada College for Women, Tirunelveli - 627011, Tamilnadu, India || January 05, 2024 || Paper: "*Mathematical investigation of the reflection of  $qP/qSV$  waves from the stress-free/rigid surface of a half-space of a micromechanically modelled piezoelectric fiber-reinforced composite*".
1. **Invited Speaker: 2<sup>nd</sup> International Conference on Recent Trends in Materials Science & Devices 2023 (ICRTMD-2023)** || Sat Kabir Institute of Technology & Management, Haryana, India || December 29-31, 2023 || Paper: "*Natures of reflected waves generated due to incident  $qP/qSV$  waves at the stress-free surface of a micro-mechanically modeled PFRC half-space*".



### OTHER PARTICIPATIONS

21. **The 16<sup>th</sup> International Conference on Computing, Communication and Networking Technologies (ICCCNT) || IIT Indore, India || July 6 - 11, 2025 || Paper: “Deep Learning Approach for Optimal Allocation of Battery Energy in Electric Vehicles”.**
20. Among the five **nationally shortlisted** people to participate in the section **Mathematical Sciences (including Statistics)** at the **108<sup>th</sup> Indian Science Congress Young Scientists Award Programme || Rashtrasant Tukadoji Maharaj (RTM) University, Nagpur, Maharashtra, India || January 3-7, 2023 || Paper: “Mathematical study of plane wave reflection and transmission at the interface of two dissimilar rotating piezoelectric fiber-reinforced composite half-spaces”.**
19. **Global Initiative of Academic Networks (GIAN) course entitled Global Seismology || Department of Applied Geophysics, IIT(ISM) Dhanbad, India || May 09 - 18, 2022 || Obtained 87 marks (out of 100) with a grade “A” in the examination conducted after the completion of the entire course.**
18. Attended a 1-day webinar on **Effective writing skills for promoting research - what do we need to know? || Elsevier at the Indian Council of Medical Research || December 13, 2021.**
17. **Internationally shortlisted** to participate in the section **Impact Mechanics and Wave Propagation** at the **25<sup>th</sup> International Congress of Theoretical and Applied Mechanics (ICTAM) (online conference) || International Union of Theoretical and Applied Mechanics (IUTAM) at Milan, Italy || August 22-27, 2021 || Short oral presentation “Mathematical study of wave reflection and refraction phenomenon at the interface of two dissimilar piezoelectric fiber-reinforced composite half-spaces” with a poster.**
16. Among the two **nationally shortlisted** people to participate in the section **IMS Prize-group-5: Solid Mechanics** at the **86<sup>th</sup> Annual Conference of Indian Mathematical Society – An International Meet, (online conference) || VIT Vellore, India || December 17-20, 2020 || Paper: “Mathematical study of reflection of  $qP$  and  $qSV$  waves from the stress-free/rigid surface of a micromechanically modeled Piezoelectric Fiber-Reinforced Composite half-space”.**
15. Among the four **nationally shortlisted** people to participate in the section **SM7: Mechanics of Composites** at the **65<sup>th</sup> Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM) (online mode) || Gandhi Institute of Technology and Management (GITAM) Hyderabad, India || December 9-11, 2020 || Paper: “On energies carried by reflected waves for incidence of plane wave in a micro-mechanically modeled Piezoelectric Fiber-Reinforced Composite halfspace: A fiber volume fraction comparison” || Received “Young Scientist Award” (awarding agency – IIT Kharagpur).**
14. **International Conference on Advances in Differential Equations and Numerical Analysis (ICADENA 2020) (online mode) || IIT Guwahati, India || October 12-14, 2020 || Paper: “Mathematical study of reflection of plane waves from the stress-free/rigid surface of a micro-mechanically modeled Piezoelectric Fiber-Reinforced Composite half-space”.**
13. **Five days online Short Term Course on Recent Trends in Advanced Materials and Devices || Department of Physics and the Department of Electronics and Communication Engineering, Dr. B. R. Ambedkar National Institute of Technology Jalandhar, Punjab, India || September 21-25, 2020.**
12. **Five days online Short Term Course on Numerical Solutions of Differential Equations || Department of Mathematics, Dr. B. R. Ambedkar National Institute of Technology Jalandhar, Punjab, India || September 16-20, 2020.**
11. **One day Webinar on the History of Mathematics entitled “From Numbers to Analysis: A Historical Journey” || Calcutta Mathematical Society (CMS), Kolkata, India || September 06, 2020.**
10. **International Webinar Series on Applications of Mathematics || Department of Mathematics, Gurucharan College, Silchar, Assam, India || August 20 – 22, 2020.**
9. Among the three **nationally shortlisted** people to participate in **Indian Science Congress Best Poster Award Programme** at the **107<sup>th</sup> Indian Science Congress Association** in the section of **Engineering Sciences || University**

- of Agricultural Sciences, GKVK Campus, Bangalore, Karnataka, India || January 03 – 07, 2020 || Paper: “Analysis of reflection phenomenon of plane waves at the isothermal stress free / rigid surface of a piezothermoelastic fiber-reinforced composite half-space” with a poster.
8. Advanced training in Mathematics (ATM) School Workshop entitled Continuum Mechanics : Principles and Applications || Department of Mathematics, Panjab University, Chandigarh, India || November 19 - 24, 2018.
  7. International Conference on Mathematical Modelling and Scientific Computing (ICMMSC 2018) || IIT Indore, India || July 19 - 21, 2018 || Paper: “Impact of irregularity on the propagation of SH wave in a slightly compressible composite structure”.
  6. Co-authored a paper presented at the 10<sup>th</sup> European Solid Mechanics Conference (ESMC 2018) || Bologna, Italy || July 02 - 06, 2018.
  5. Global Initiative of Academic Networks (GIAN) course entitled Seismic Anisotropy: Estimation, Imaging, & Reservoir Characterization || Department of Earth Science, IIT Roorkee, India || June 25 - 29, 2018.
  4. International Conference on Composite Materials and Structures (ICCMS 2017) || IIT Hyderabad, India, || December 27 – 29, 2017 || Paper: “Impact of irregularity on the propagation of SH wave in a slightly compressible composite structure”.
  3. National Training Programme on Research Methodology || IIT (ISM) Dhanbad, Jharkhand, India || December 18 – 23, 2017.
  2. International Seminar on Science and Religion “The Unknowable and the Counterintuitive” || St. Xavier’s College, Kolkata || July 08, 2013.
  1. “St. Xavier’s Global Earth Summit III” in an International Conference on “Environmental Stewardship and Corporate Social Responsibility” || St. Xavier’s College, Kolkata || February 22-23, 2013.

#### REVIEWER

#### Journals (Alphabetical order):

[Acta Mechanica](#) (Springer), [American Journal of Mechanical and Materials Engineering](#) (Science Publishing Group Inc.), [Applied Sciences](#) (MDPI), [Archive of Applied Mechanics](#) (Springer Link), [Archive of Mechanics](#) (Polish Academy of Sciences), [Asian Journal of Advanced Research and Reports](#), [Buildings](#) (MDPI), [Contemporary Mathematics](#) (Universal Wiser Publisher), [Coupled Systems Mechanics](#) (Techno Press), [European Journal of Mechanics - A/Solids](#) (Elsevier), [Geomechanics and Geophysics for Geo-Energy and Geo-Resources](#) (Springer Link), [IEEE Transactions on Antennas and Propagation](#) (IEEE Xplore), [International Journal of Heat and Mass Transfer](#) (Elsevier), [International Journal of Mathematics and Mathematical Sciences](#) (Hindawi), [International Journal of Modern Physics B](#) (World Scientific), [International Journal of Oceanography & Aquaculture \(IJOAC\)](#) (Medwin Publishers), [Journal of Computational Electronics](#) (Springer Link), [Journal of Earth System Science](#) (Springer Link), [Journal of Engineering Mathematics](#) (Springer Link), [Journal of Thermal Stresses](#) (Taylor and Francis), [Mathematical Problems in Engineering](#) (Hindawi), [Mathematics](#) (MDPI), [Mechanics of Advanced Materials and Structures](#) (Taylor and Francis), [Mechanics of Time-Dependent Materials](#) (Springer Link), [Ocean Engineering](#) (Elsevier), [Physica Scripta](#) (IOPscience), [Physics of Fluids](#) (IOP Publishing), [Polymers](#) (MDPI), [Shock and Vibration](#) (Hindawi), [Smart Materials and Structures](#) (AIP science), [Symmetry](#) (MDPI), [Coupled Systems Mechanics, An International Journal](#) (Techno Press), [Thin-Walled Structures](#) (Elsevier), [Wave Motion](#) (Elsevier), [Waves in Random and Complex Media](#) (Taylor and Francis), [ZAMM - Journal of Applied Mathematics and Mechanics / Zeitschrift für Angewandte Mathematik und Mechanik](#) (Wiley).

#### Conferences:

International Conference on Intelligent and Cloud Computing (ICoICC 2025); The 7<sup>th</sup> International Conference on Mechanical, Electric, and Industrial Engineering (2024); The 4<sup>th</sup> International Conference on Electrical, Computer and

Energy Technologies (2024); The 2<sup>nd</sup> International Conference on Mechanics, Electronics, Automation and Automatic Control (MEAAC 2024); International Conference on Ambient Intelligence in Health Care (2023); International Conference on Mechanical, Automotive and Mechatronics Engineering (2023).

### TEACHING EXPERIENCE

#### Courses taught at ITER, SOA:

1. Applied Computational Thinking using Python: Theory classes and practical labs of two sections of Cyber Security specialization branch during 2025-2026.
2. Python for Computer Science and Data Science: Theory classes and practical labs of three sections of CSE branch during 2024-2025.
3. Basic Programming in Python: Theory classes and practical labs of three sections of CSE branch during 2023-2024.
4. Introductory Graph Theory: Theory classes and problem solving sessions of two sections of CSIT branch during 2023-2024.
5. Advanced Discrete Mathematics: Theory classes and problem solving sessions of three sections of CSE and CSIT branches during 2022-2023.

#### Teaching Assistant (TA) duties performed during Ph.D. tenure at IIT(ISM) Dhanbad:

1. Digital Electronics and Computer Organization: Practical classes during Monsoon Semester 2018-19.
2. Design and Analysis of Algorithms: Practical classes during Winter Semester 2018-19.
3. Vector Calculus: Theory and Tutorial classes during Winter Semester 2018-19.
4. Complex Analysis: Theory and Tutorial classes during Monsoon 2019-20.
5. Modern Algebra: Theory classes during Monsoon 2019-20
6. Computer Organization: Theory classes during Winter Semester, 2019-2020.
7. Matrix Theory and Differential Equations: Theory and Tutorial classes during Winter Semester, 2019-2020.

#### Assisted in M.Sc. Project work and Thesis:

1. “Analysis of plane waves reflecting from the stress-free and rigid surfaces of an initially stressed micro-mechanically modeled PMFRC half-space” by Mr. Jitendra Chaurasiya (Adm. No. 20MS0049), May 2022.
2. “Study of plane waves reflecting from the impedance boundary of a micro-mechanically modeled PMFRC half-space” by Mr. Dandu Vedanand Varma (Adm. No. 20MS0154), May 2022.

I also have experience in the process of preparing Sponsored R&D project proposals for national agencies such as DST(SERB), CSIR, and NBHM.

### AWARDS/ ACHIEVEMENTS/ FELLOWSHIPS/ SCHOLARSHIPS

10. “Best Paper Award” in Technical Session: ICRTMD 24 [Faculty/Scientist (Invited)] at the 3<sup>rd</sup> International Conference on "Recent Trends in Materials Science & Devices 2025" (ICRTMD-2025) || Department of Physics, JVMGRR College, Charkhi Dadri, Haryana, India and Research Plateau Publishers || 24-26 March, 2025 || Paper: “Thermoelastic damping in micro-scale piezothermoelastic fiber-reinforced composite clamped beam” as an Invited Speaker.
9. “Best Paper Award” in Technical Session 02 [Faculty/Scientist (Invited) Speakers], themed “Emerging Smart and Responsive Materials / Energy Applications of Materials” at the International Conference on Composite Materials for Environment Protection & Remediation (ICCMEPR-2024) (online mode) || Department of



Chemistry, G. B. College, Ramgarh VKS University, Ara, Bihar, India & Research Plateau Publishers || July 02-03, 2024 || Paper: “*Love wave propagation in layered piezoelectric structures for sensor based applications*” as an **Invited Speaker**.

8. “**Young Scientist Award**” at the **65<sup>th</sup> Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM)** || Gandhi Institute of Technology and Management (GITAM) Hyderabad, India (Awarding agency – **IIT Kharagpur**) || December 9-11, 2020 || Paper: “*On energies carried by reflected waves for incidence of plane wave in a micro-mechanically modeled Piezoelectric Fiber-Reinforced Composite half-space: A fiber volume fraction comparison*”.
7. **3<sup>rd</sup> rank at State Level (Jharkhand)** in the **Heartfulness Essay Event** || Shri Ram Chandra Mission in collaboration with United Nations Information Centre for India and Bhutan & Heartfulness Education Trust || 2019.
6. **IITISM Junior Research Fellowship** during the last two years of **Ph.D.** (April 2020-June 2022).
5. **Awarded Department of Science and Technology-Science and Engineering Research Board (DST-SERB) fellowship during the first three years of Ph.D.** (June 2017-March 2020).
4. **AIR 199** in Graduate Aptitude Test in Engineering (**GATE**) in Mathematics paper with **Score 454 (30.36 out of 100)** on 2017.
3. **AIR 3** in **ISM M.Sc. Entrance Examination** (11th May 2014).
2. Cleared **Madhava Mathematics Competition (2012, 2013)** organized by **S.P. College, Pune & TIFR, Mumbai** with financial support from **NBHM** and participated in **Madhava Mathematics Camp**, organized at **St. Xavier’s College, Kolkata (2012)**.
1. **Innovation in Science Pursuit for Inspired Research (INSPIRE) Scholarship** sponsored by **DST (Department of Science and Technology, Government of India)** for five years (B.Sc+M.Sc 2011-2015) for being among the **Top 1% in class 12 Board Exams (WBCHSE)**.

#### MEMBERSHIPS IN SCIENTIFIC ORGANIZATIONS

7. Life member of “**International Association of Engineers (IAENG)**”, since May 16, 2024 (Member Number: **372704**).
6. Life member of “**Global Initiative of Academic Networks (GIAN)**”, Indian Institute of Technology, Kharagpur, West Bengal, India, since **December 17, 2017** (Application Number: **2015150368384**).
5. Life member of “**Indian Society of Theoretical and Applied Mechanics (ISTAM)**”, Kharagpur, West Bengal, India, since **July 09, 2019** (Membership ID: **L/1164**).
4. Life member of “**The Indian Science Congress Association (ISCA)**”, Kolkata, West Bengal, India, since **March 25, 2019** (Membership ID: **L37750**).
3. Life member of “**Indian Mathematical Society (IMS)**”, Pune, Maharashtra, India, since **February 25, 2019** (Membership ID: **L/2019/23**).
2. Life member of “**Society of Applied Mathematics (SAM)**”, IIT (ISM) Dhanbad, since **March 21, 2017** (Membership ID: **LM/2017-2018/132**).
1. Life member of “**Calcutta Mathematical Society (CMS)**”, Kolkata, West Bengal, India, since **June 01, 2015** (License no. **LG/79**).

#### PROJECTS UNDERTAKEN

3. I was appointed as a **DST Project Fellow** (Junior Research Fellow for the first two years and Senior Research Fellow for the third year) to work under the **DST-SERB sponsored 3-year project** entitled “**Mathematical Study on Wave Propagation Aspects in Piezoelectric Composite Structures with Complexities**” (Project No.

**EMR/2016/003985**). I have worked as a Project fellow for the entire duration of the project, and within that duration, I have **published three research articles in Q1 SCI/SCIE journals that acknowledge DST-SERB** as well.

2. Dissertation on “**Reflection and transmission of plane waves at an imperfect interface between two dissimilar monoclinic elastic half-spaces: a review**” under the supervision of **Dr. Sanjeev Anand Sahu** during **M.Sc.** (2014 - 2016).
1. **Summer Internship Programme in Numerical Analysis** under the guidance of **Prof. Natesan Srinivasan, Department of Mathematics, IIT Guwahati**, during May 2015 - July 2015.

## LANGUAGES

- **English** – Fluent speaker, proficient writer
- **Hindi** – Native Language
- **Bengali** – State Language

## SKILLS

### 1. Computer Skills:

- **Programming Languages:** Python.
- **Computational Software:** Mathematica.
- **Operating Systems:** Windows 10.
- **Text Processors:** LaTeX, MS-PowerPoint, MS-Excel, MS-Word.
- **Graphical illustrational Software:** Inkscape

### 2. Others:

**Communication:** My participation in some national/international level seminars/webinars/workshops/conferences since B.Sc. greatly enhanced my written and verbal communication skills. My interactions with an audience belonging to a broader area of scientific discipline have most certainly benefitted me immensely by enriching my oratory skills and subject knowledge.

## POSITIONS OF RESPONSIBILITY

1. Serving as an Editorial Board Member of [Electrical Engineering and Technology](#) ([Scientific Publishing Limited](#)) since October 2025.
2. Serving as an Editorial Board Member of [Scientific Reports](#) ([Springer Nature](#)) since September 2025.
3. **Associate Editor of DS Bulletin** - the inaugural edition (Volume 1, June 2025) of the **annual newsletter** of the Centre for Data Science, Institute of Technical Education and Research, Siksha 'O' Anusandhan (Deemed to be University).
4. Served as a Judge at **AI Treasurehunt**, **Tormenta**, **CodeQuest**, and **Robo Race** – flagship events of ‘Elysium’ – a week-long (24-27 & 31 March 2025 and 1-2 April, 2025) socio-cultural-tech fest organized by **Institute Of Technical Education and Research, Siksha 'O' Anusandhan University**.
5. Served as a **Technical Committee member** for a **National level Short-Term Training Program (NLSTTP) on Statistical Machine Learning**, jointly organized by the Centre for Data Science and Centre for Artificial Intelligence & Machine Learning under the Department of Computer Science and Engineering during 7<sup>th</sup>- 11<sup>th</sup> August, 2023, at Institute Of Technical Education and Research, Siksha 'O' Anusandhan (Deemed to be university), Bhubaneswar 751030, Odisha, India.
6. **Coordinated Siksha ‘O’ Anusandhan Weekly Academic Lecture (SOAWAL 2022-2023)**. SOAWAL (2<sup>nd</sup> Edition) is conducted at the Centre for Data Science every Saturday in online mode. Here, eminent faculties working in Higher Educational Institutions (HEIs) are invited to deliver lectures on their research areas.

- i) **Coordinated the 42<sup>nd</sup> SOAWAL. Dr. Prerona Dutta** (Arnold Ross Assistant Professor Department of Mathematics, The Ohio State University, Columbus, USA) delivered a talk on "Metric entropy and nonlinear partial differential equations".
  - ii) **Coordinated the 36<sup>th</sup> SOAWAL. Prof. Natesan Srinivasan** (Professor (HAG), Dept. of Mathematics, IIT Guwahati) delivered a talk on "Moving Mesh Methods for Burgers' and Navier-Stokes Equations".
  - iii) **Coordinated the 27<sup>th</sup> SOAWAL. Prof. Ravi Sharma** (Assistant Professor, Dept. of Earth Sciences, IIT Roorkee) delivered a talk on "AI & ML Guided Feature Extraction for Quantified Estimates and Impacts on Long-term Storage of CO<sub>2</sub> and H<sub>2</sub> in Complex Carbonate and Shale Formations".
  - iv) **Coordinated the 14<sup>th</sup> SOAWAL. Prof. Snehashish Chakraverty** (Professor (HAG), Dept. of Mathematics, NIT Rourekla) delivered a talk on "Fuzzy-Affine Arithmetic: A New Perspective for Uncertainty Handling".
7. Joint-secretary, **SIAM (Society for Industrial and Applied Mathematics)** student chapter, **IIT(ISM) Dhanbad, India.** [2015-2016]
  8. **Volunteer, Director and Head of Department, Games and Recreation, "ANALYTICA" 2011, 2012, 2013; Department of Mathematics, St. Xavier's College, Kolkata, India.** ANALYTICA is an annual festival organized by the students of the Department of Mathematics in St. Xavier's College, Kolkata.
  9. I was a **member of the editorial team** for "**Beacon**" – the departmental magazine in St. Xavier's College, Kolkata.
  10. **Class representative** during **M.Sc.** for two years. My class conducted and participated in several events during my M.Sc., like Teacher's Day, Vishwakarma Puja, and Basant, under my supervision. Basant is an annual festival organized in IIT (ISM) in which Alumni of 50 years ago (from respective years) come to visit IIT (ISM) Dhanbad.

#### ACTIVITIES AND INTERESTS

- ❖ Taught Mathematics to some underprivileged students of class VIII after college hours in college premises as was arranged by St. Xavier's College, Kolkata (**National Social Service-NSS**), on 2012.
- ❖ Participated and volunteered in the annual festival, **ANALYTICA** organized by the students of the Department of Mathematics, St. Xavier's College, Kolkata for 3 consecutive years (2011, 2012, 2013).
- ❖ Playing Chess and solving Sudoku to enrich the mind.
- ❖ Reading to enrich the soul.
- ❖ Drawing ([Mainly pencil sketching](#))
- ❖ I'm a numismatist - I like collecting currencies (both [coins](#) and [banknotes](#)) of different countries.
- ❖ Listening to Music

I hereby declare that all the aforementioned statements made by me are true, complete, and correct to the best of my knowledge and belief.

*Sayantana Guha*  
(SAYANTAN GUHA)