

# Anusree Ray

## Personal Details

*Birth* September 17, 1993  
*Phone* +91 7292974422  
*E-mail* anusreeray@iisc.ac.in

## Research Interests

Wave propagation, Metamaterials, Solid Mechanics, Piezoelectric Materials, Numerical Methods

## Experience

June 2022 **Postdoctoral Fellow**, *Department of Aerospace Engineering, Indian Institute of Science*,  
–Present Bengaluru, India.

## Education

Aug 2016 **Ph.D. in Applied Mathematics**, *Indian Institute of Technology, (Indian School of Mines)*,  
–Jan 2022 Dhanbad, India.  
Defended: 13/12/2021, Awarded: 11/01/2022  
2014–2016 **M.Sc. in Mathematics and Computing**, *Indian Institute of Technology, (Indian School of Mines)*, Dhanbad, India, **OGPA: 9.63/10**.  
2011–2014 **B.Sc. in Mathematics (Honours)**, *Bethune College, University of Calcutta*, Kolkata, India, **72.12%**.  
2011 **Higher Secondary**, *Pearls of God, Hindmotor*, (Board: *Indian School Certificate*), Kolkata, India, **89.25%**.  
2009 **Secondary**, *Pearls of God, Hindmotor* (Board: *Indian Certificate of Secondary Education*), Kolkata, India, **89.4%**.

## Ph.D. Thesis

Research Solid Mechanics, Wave Propagation, Piezoelectric Materials, Microcontinuum Structures, Finite  
Field Element Methods  
Title Wave characteristics in Piezoelectric, Piezomagnetic and Microcontinuum Structures with  
Boundary Peculiarities

## Masters Thesis

Title Influence of Corrugated Boundary Surfaces, Reinforcement, Hydrostatic Stress, Heterogeneity  
and Anisotropy on Love-Type Wave Propagation: A Review

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## Research Publications

- 1 **Ray, A.** and Singh, A. K., (2021). Electromechanical coupling and mass loading sensitivity of SH waves in a dielectrically imperfect piezoelectric structure, *International Journal of Solids and Structures*, <https://doi.org/10.1016/j.ijsolstr.2020.10.025>
- 2 **Ray, A.** and Singh, A. K., (2021). Impact of imperfect corrugated interface in piezoelectric-piezomagnetic composites on reflection and refraction of plane waves, *The Journal of the Acoustical Society of America*, <https://doi.org/10.1121/10.0005544>
- 3 Singh, A. K., **Ray, A.**, and Kumari, R. (2021). A new dispersive wave with Love-type waves in a microstructure due to an impulsive point source. *Waves in Random and Complex Media*, <https://doi.org/10.1080/17455030.2021.1892238>
- 4 Kumari, R., Singh, A. K., and **Ray, A.** (2021). Love-type wave in low-velocity piezoelectric-viscoelastic stratum with mass loading, *Acta Mechanica*, <https://doi.org/10.1007/s00707-020-02831-3>
- 5 **Ray, A.** and Singh, A. K., (2020). Love-type waves in couple-stress stratum imperfectly bonded to an irregular viscous substrate. *Acta Mechanica*, <https://doi.org/10.1007/s00707-019-02525-5>
- 6 Singh, A. K., Singh, S., Kumari, R., and **Ray, A.** (2020). Impact of point source and mass loading sensitivity on the propagation of an SH wave in an imperfectly bonded FGPPM layered structure. *Acta Mechanica*, <https://doi.org/10.1007/s00707-020-02659-x>
- 7 **Ray, A.**, Singh, A. K., and Kumari, R. (2019). Green's function technique to model Love-type wave propagation due to an impulsive point source in a piezomagnetic layered structure, *Mechanics of Advanced Materials and Structures*, <https://doi.org/10.1080/15376494.2019.1597227>
- 8 Singh, A. K., **Ray, A.**, and Chattopadhyay, A. (2019). Analytical Study on Propagation of G-Type Waves in a Transversely Isotropic Substrate beneath a Stratum considering Couple Stress, *International Journal of Geomechanics*, [https://doi.org/10.1061/\(ASCE\)GM.1943-5622.0001454](https://doi.org/10.1061/(ASCE)GM.1943-5622.0001454)
- 9 Singh, A. K., Kumari, R., **Ray, A.**, and Chattopadhyay, A. (2019). Love-type waves in a piezoelectric-viscoelastic bimaterial composite structure due to an impulsive point source. *International Journal of Mechanical Sciences*, <https://doi.org/10.1016/j.ijmecsci.2019.01.019>
- 10 Singh, A. K., Koley, S., Negi, A., and **Ray, A.** (2019). On the dynamic behavior of a functionally graded viscoelastic-piezoelectric composite substrate subjected to a moving line load. *The European Physical Journal Plus*, <https://doi.org/10.1140/epjp/i2019-12444-2>
- 11 Singh, A. K., Das, A., **Ray, A.**, and Chattopadhyay, A. (2018). On point source influencing Love-type wave propagation in a functionally graded piezoelectric composite structure: A Green's function approach. *Journal of Intelligent Material Systems and Structures*, <https://doi.org/10.1177/1045389X18754351>
- 12 Singh, A. K., Das, A., and **Ray, A.** (2017). Rayleigh-type wave propagation through liquid layer over corrugated substrate. *Applied Mathematics and Mechanics*, <https://doi.org/10.1007/s10483-017-2205-8>

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## Book Chapter

- 1 **Ray, A.** and Singh, A. K. (2020). A Green's Function Approach to Analyze the Dispersion Characteristics of Love Type Wave Due to an Impulsive Point Source in a Piezoelectric Layered Structure. In: Manna S., Datta B., Ahmad S. (eds) Mathematical Modelling and Scientific Computing with Applications. ICMMS 2018. Springer Proceedings in Mathematics & Statistics, vol 308. Springer, Singapore. [https://doi.org/10.1007/978-981-15-1338-1\\_1](https://doi.org/10.1007/978-981-15-1338-1_1)

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## Conferences attended

- 1 **International Conference On Mathematical Modelling and Scientific Computing**, IIT Indore, June 19-21, 2018, and presented a paper entitled "A Green's function approach to analyse the dispersion characteristics of Love-type wave due to an impulsive point source in a piezoelectric layered structure".
- 2 **International Conference on Composite Materials and Structures**, Hyderabad, December 27-29, 2017, presented a paper entitled "On the possibility of Rayleigh-type wave propagation through a liquid layer overlying a porous/heterogeneous half-space with corrugated interface".
- 3 **International Conference on Recent Advances in PDEs: Theory, Computations and Applications**, IIT Bombay, Mumbai June 8-10, 2017, and presented a paper entitled "Influence of corrugated interface and poroelasticity on Rayleigh-type wave propagation".

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## Workshops attended

- 1 GIAN course on **Multi-Scale Modeling of Advanced Materials**, MNIT, Jaipur, June 16-29, 2019.
- 2 GIAN course on **Multiscale Modelling of Heterogeneous Structures**, Jayachama-Rajendra College of Engineering, JSS Technical Institution Campus, Mysuru, June 4-16, 2018.
- 3 **National Workshop on Computational Mathematics (NWCM-2017)-Phase-I**, Department of Mathematics, Anna University, Chennai, March 2-8, 2017.

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## Skills

C, C++, JAVA, R, MATLAB, MATHEMATICA

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## Extra-Curricular

- 1 Life Member of Indian Science Congress
- 2 Life Member of Indian Mathematical Society
- 3 Life Member of Society of Applied Mathematics, IIT (ISM), Dhanbad