CURRICULUM VITAE of RUPANWITA GAYEN

Contact Information

Dr. Rupanwita Gayen,
Associate Professor,
Department of Mathematics, IIT Kharagpur
Kharagpur 721302. INDIA
e-mail: rupanwita.gayen@gmail.com, rupanwita@maths.iitkgp.ac.in

Professional Career

- Associate Professor in Mathematics at IIT Kharagpur from May 09, 2019 to till date.
- Assistant Professor in Mathematics at IIT Kharagpur from December 19, 2006 to May 08, 2019.
- Post Doctoral Fellow (NBHM) at Indian Statistical Institute, Kolkata from April 2005 to November 2006.
- SRF (CSIR) at Indian Statistical Institute from 2002 to 2005.
- JRF in an NBHM project at Indian Statistical Institute from 2000 to 2002.

Education

Doctor of Philosophy in Applied Mathematics
Year : 2005
University : Calcutta University
Field : Applied Mathematics (Fluid Dynamics)
Title of Thesis : Water wave scattering by barriers and surface discontinuities.
Advisor : Professor (retd.) B. N. Mandal, Indian Statistical Institute, Kolkata, INDIA

Master of Science in Mathematics
Year : 1999
University : Jadavpur University
Class : First Class

Batchelor of Science (Mathematics Hons.)
Year :1996
University : Jadavpur University
Class : First Class , Rank – 2nd

Scholarships & Fellowships:

a) Awarded NBHM Post Doctoral Fellowship in 2005.
b) Awarded CSIR Senior Fellowship in 2002.
c) Awarded CSIR Fellowship on the basis of NET Examination in 2002.
d) Awarded Scholarship by West Bengal Govt. on the basis of B. Sc. (Hons.) Examination in 1996.
e) Awarded Scholarship by West Bengal Govt. on the basis of Higher Secondary Examination in 1993
f) Awarded Scholarship by West Bengal Govt. on the basis of Madhyamik Examination in 1991.

Projects implemented:

Title of the project: Wave Interaction with Barriers and Floating Elastic Plates (**Under Young Scientist scheme)**
Duration of the project: From 16.04.2012 to 15.04.2015 (three years).
Funding Agency: DST-SERB
Reference No. SR/FTP/MS-020/2010

Teaching Experience

Assistant Professor - Department of Mathematics, IIT Kharagpur, December 2006 to May, 2019
Associate Professor - Department of Mathematics, IIT Kharagpur, May, 2019 – till date.

Subjects Taught:

1. Mathematics I (ODE, Application of differential Calculus, Calculus of several variables, complex analysis)
2. Mathematics II (Linear Algebra, Numerical Analysis, Integral Calculus, Vector calculus)
3. Partial Differential Equations
4. Transform Calculus
5. Integral Equations and Variational methods
6. Fluid Mechanics
7. Analytical Mechanics
8. Numerical Analysis
9. Advanced numerical Techniques
10. Advanced numerical Analysis
11. Differential Geometry
12. Preparatory Mathematics
13. Operations Research
14. Numerical Solutions of Ordinary and Partial Differential Equations

List of publications

A. Publications in refereed journals:

1. Water wave diffraction by a circular barrier in two superposed fluids with an ice-cover by Najnin Islam and R. Gayen, *Ocean Engineering*, (2020) https://doi.org/10.1016/j.oceaneng.2020.107182
2. Water wave scattering and energy dissipation by interface‑piercing porous plates by Najnin Islam and **R. Gayen,** *Journal of Marine Science and Technology*, (2020) https://doi.org/10.1007/s00773-020-00725**.**
3. Surface Wave Scattering by an Elastic Plate Submerged in Water with Uneven Bottom by Souvik Kundu and **R. Gayen**, *Mathematical Modelling and Analysis*, **25(3)** (2020) 323 - 337**.**
4. Scattering and radiation of water waves by a submerged rigid disc in a two-layer fluid by Najnin Islam, Souvik Kundu and **R. Gayen**, *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences* (2019) http://doi.org/10.1098/rspa.2019.0331
5. Scattering of surface waves by a pair of asymmetric thin elliptic arc shaped plates with variable permeability by **R. Gayen** and S. Gupta, *European Journal of Mechanics / B Fluids* (2019) https://doi.org/10.1016/j.euromechflu.2019.12.004
6. The interaction of flexural-gravity waves with a submerged rigid disc by Souvik Kundu, Ranadev Datta, **R. Gayen** and Najnin Islam, *Applied Ocean Research*, **92** (2019) 101912.
7. Water wave interaction with dual asymmetric non-uniform permeable plates using integral equations by S. Gupta, and **R. Gayen**, *Applied Mathematics* and Computation **346** (2019) 436 - 451.
8. Interaction of Water Waves with Permeable Barrier using Galerkin Approximation by **R. Gayen** and S. Gupta, *Journal of Advances in Fluid Mechanics* (2019) DOI: 10.29252/jafm.13.01.29877
9. Scattering of water waves by an inclined plate in a two-layer fluid by Najnin Islam and **R. Gayen,** *Applied Ocean Research*, **80** (2018) 136 - 147**.**
10. Scattering of water waves by an inclined elastic plate in deep water by Souvik Kundu, **R. Gayen**, Ranadev Datta, *Ocean Engineering*, 167 (2018) 221–228**.**
11. Scattering of oblique water waves by two thin unequal barriers with non-uniform permeability by S. Gupta, and **R. Gayen**, *Journal of Engineering Mathematics* **112**(1) (2018) 37 - 61.
12. Effect of a floating elastic plate/membrane on the motion due to a ring source in water with porous bed by **R. Gayen**, and Najnin Islam *Indian Journal of Pure and Applied Mathematics* **49**(2) (2018) 239-256.
13. Wave motion due to a ring source in two superposed fluids covered by a thin elastic plate by Najnin Islam, **R. Gayen**, and B. N. Mandal *Journal of Advances in Fluid Mechanics* **11**(4) (2018) 1047-1057.

14. Flexural-Gravity Wave Scattering by a Circular-Arc-Shaped Porous Plate *by* Arpita Mondal, Srikumar Panda, and **R. Gayen** *Studies in Applied Mathematics* **138**(1) (2017) 77-102.
15. An efficient integral equation approach to study wave reflection by a discontinuity in the impedance-type surface boundary conditions *by* Srikumar panda, Arpita Mondal and **R. Gayen** *International Journal of Applied and Computational Mathematics* **3**(2) (2017) 1037–1051.
16. Water wave interaction with two symmetric inclined permeable plates by **R. Gayen** and Arpita Mondal *Ocean Engineering*, **124** (2016) 180–191**.**
17. Interaction of surface water waves with a vertical elastic plate - a hypersingular integral equation approach by Rumpa Chakraborty, Arpita Mondal and **R. Gayen**, *Zeitschrift für angewandte Mathematik und Physik (ZAMP)*, **67**(5) (2016), 1-18
18. Approximate solution of the problem of scattering of surface water waves by a partially immersed rigid plane vertical barrier *by* **R. Gayen**, Sourav Gupta and A. Chakrabarti *Applied Mathematics Letters*, **58** (2016) 19 – 25**.**
19. Scattering of water waves by a pair of vertical porous plates *by* **R. Gayen** and Arpita Mondal *Geophysical & Astrophysical Fluid Dynamics*, **109** (2015) 480 – 496**.**
20. Wave Interaction with Dual Circular Porous Plates *by* Arpita Mondal and **R. Gayen** *Journal of Marine Science and application*, **14** (2015) 366-375**.**
21. Approximate solutions of the systems of Volterra integral equations *by* **R. Gayen** and Sourav Gupta *Journal of Advanced Research in Scientific Computing*, **7** (2015) 52 – 61.
22. On the solution of coupled Fredholm integral equations *by* **R. Gayen**, Deepak Singh and Neeraj Paul *Journal of Advanced Research in Scientific Computing*, **6** (2014) 46 – 53.
23. A hypersingular integral equation approach to the porous plate problem *by* **R. Gayen** and Arpita Mondal *Applied Ocean Research*, **46** (2014) 70 - 78**.**
24. An Alternative Method to Study Wave Scattering by Semi-infinite Inertial Surfaces *by* **R. Gayen** and Ranita Roy *Journal of Marine Science and Applications*, **12** (2013) 31 – 37.
25. Scattering of surface water waves by a floating elastic plates in two dimensions *by* **Rupanwita Gayen** and B. N. Mandal *SIAM Journal of Applied Mathematics*, **69** (2009) 1520-1541.
26. Water wave diffraction by a surface strip *by* **R. Gayen**, B. N. Mandal and A. Chakrabarti *Journal of Fluid Mechanics*, **571** (2007) 419-432**.**
27. Motion due to fundamental singularities in finite depth water with an elastic solid cover *by* **Rupanwita Gayen** (Chowdhury) and B. N. Mandal *Fluid Dynamics Research*, **38** (2006) 224-240.
28. Water wave scattering by bottom undulations in the presence of a thin partially immersed barrier *by* B.N. Mandal and **Rupanwita Gayen** *Applied Ocean Research*, **28** (2006) 113-119.
29. Water wave scattering by two sharp discontinuities in the surface boundary conditions *by* **Rupanwita Gayen** (Chowdhury), B. N. Mandal and A. Chakrabarti *IMA Journal of Applied Mathematics*, **71** (2006) 811 – 831**.**
30. Water wave scattering by an ice-strip *by* **Rupanwita Gayen**, B. N. Mandal and A. Chakrabarti *J. Engng. Math.*, **53** (2005) 21 – 37**.**
31. The Dock Problem Re-visited *by* A. Chakrabarti, B.N. Mandal and **Rupanwita Gayen** *Int. J. Math. Math.Sci.*, **21** (2005) 3459-3470.

32. Water wave scattering by two partially immersed nearly vertical barriers, Soumen De, **Rupanwita Gayen** and B.N. Mandal, Wave Motion, **43** (2005) 167-175.
33. Motion due to ring source in ice-covered water, **Rupanwita Gayen** (Chowdhury) and B. N. Mandal, *Int. J. Engng. Sci*., **42** (2004) 1645-1654**.**
34. Ring source potential in water with an ice-cover, B. N. Mandal and **Rupanwita Gayen** (Chowdhury), *Int. J. Math. Sci*., **3** (2004) 208-215
35. Water wave scattering by two thin symmetric inclined plates submerged in finite depth water, **Rupanwita Gayen** (nee Chowdhury) and B. N. Mandal, *Int. J. Appl. Mech. Engng.*, **8(4)** (2003) 589 - 601.
36. Water wave scattering by two symmetric circular arc shaped thin plates, B. N. Mandal and **Rupanwita Gayen** (nee Chowdhury), *J. Engng. Math*., **44** (2002) 297 - 309.

B. Publications in conference proceedings:

1. Water wave scattering by two circular-arc-shaped thin plates with non-uniform permeability, **R. Gayen** and Sourav Gupta, *Proceedings of the ASME 37th International Conference on Ocean, Offshore and Arctic Engineering*, 2019 (Glasgow, UK).
2. Water wave scattering by the two edges of a strip-like ice-cover, **Rupanwita Gayen** (Chowdhury) and B. N. Mandal, Proceedings of *19 IWWWFB*, Cortona, Italy, 28-31 March, 2004.
3. The classical dock problem – use of integral equations, B. N. Mandal, A. Chakrabarti and **Rupanwita Gayen** (Chowdhury), Proceedings of *Int. Symp. Advances in Fluid Mech.*, Bangalore University, 21 – 22 June 2004.
4. Scattering of Water Waves by Two Thin Symmetric Inclined Plates, B. N. Mandal and **Rupanwita Gayen** (nee Chowdhury), Proceedings of *18 IWWWFB*, Le Croisic, France, 6-9 April, 2003.