

Amartya Chakraborty, M.Sc.

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Personal Information

Date of Birth	21 March 2000.
Nationality	Indian.
Current Residence	Kaiserslautern 67663, Germany.
ORCID Id	0009-0008-1353-5246.

Employment History

September 2022 – Present	Research Assistant , Department of Flow and Material Simulation (SMS), Fraunhofer ITWM, Kaiserslautern, Germany.
March 2021 – August 2022	Mathematics Tutor , Freelance (Online), Chegg India, India.
May 2021 – August 2022	Mathematics Tutor , Freelance (Online), Course Hero, Philippines.

Education

March 2023 – Present	Ph.D. Department Of Mathematics, RPTU Kaiserslautern & Landau, Germany. Thesis title: <i>Asymptotic analysis of high-contrast composites governed by non-linear elasticity.</i>
September 2022 – February 2023	Project Studies in Advanced Technology (ProSAT) , Department of Mathematics, RPTU Kaiserslautern & Landau, Germany.
August 2020 – July 2022	M.Sc. Mathematics , Indian Institute of Technology Madras (IITM), India. Thesis title: <i>Faber-Krahn inequality for smooth and polygonal domains.</i> Grade: 9.04/ 10
July 2017 – July 2020	B.Sc. Mathematics , Bankura Christian College, Bankura University, India. Thesis title: <i>Countable and uncountable sets.</i> Grade: 9.03/10

Research interest



- Homogenization (periodic and stochastic).
- Calculus of variation.
- Mathematical modeling.
- Controllability and optimal control problems.
- Eigenvalue problems.
- Geometric partial differential equations.

Research Publications

Journal Articles



- 1 A. Chakraborty, H. Dutta, and H. S. Mahato, "Mathematical modelling and homogenization of thin fiber-reinforced hydrogels," *arXiv preprint arXiv:2501.12828*, 2025.
- 2 A. Chakraborty, G. Griso, and J. Orlik, "Dimension reduction and homogenization of thin plate reinforced with rigid substructures," *Under Review*, 2025.
- 3 A. Chakraborty, G. Griso, and J. Orlik, "Homogenization, dimension reduction and linearization of thin composite plate under small loading," *Under Review*, 2025.
- 4 A. Chakraborty and A. Sufian, "Homogenization of optimal control problems in high-contrast domain subjected to linearized elasticity," *Under Review*, 2025.
- 5 J. Orlik, D. Neusius, A. Chakraborty, S. Backes, T. Gries, and K. Steiner, "Modelling of flat pre-strain driven structures, folding to desired surface and application to 3d-printing on textiles," *International Journal of Engineering Science*, vol. 208, p. 104 201, 2025.
- 6 A. Chakraborty, G. Griso, and J. Orlik, "Dimension reduction and homogenization of composite plate with matrix pre-strain," *Asymptotic Analysis*, vol. 138, no. 4, pp. 255–310, 2024.

Skills







Languages  Strong reading, writing and speaking competencies for English, Bengali, and Hindi.
Coding  \LaTeX , MATLAB and Python.

Awards and achievements



Grants

- 2024  SIAM MS24 Student Travel Award (Availed).
  DAAD Kongressreisen 2024 (Not Availed).


Academics

-  Graduate Aptitude Test for Engineering (GATE) 2022: Achieved all Indian Rank 167.
-  National Eligibility Test (NET) 2022: Achieved all Indian Rank 82.
-  Qualified for Tata Institute of Fundamental Research GS 2020.
-  Joint Admission Test for Masters (JAM): Achieved all Indian Rank 56.
-  Received the award of Best All-Round Student of School 2016.
-  Merit Scholarship from IIT Madras for two years 2020-2022.

Sports and extracurricular

-  Palatine League Volleyball 2024-2025 (Playing for the club SG Westpfalz, Kaiserslautern).
-  Under 17 national school level volleyball 2014-2015.

References

-  **Prof. Dr. Georges Griso**
Laboratoire Jacques-Louis Lions (LJLL), Sorbonne Université, CNRS, Université de Paris, F-75005 Paris, France.
georges.griso@gmail.com, georges.griso@sorbonne-universite.fr.

References (continued)

■ **Dr. Julia Orlik**

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■ **Dr. TV Anoop**

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■ **Dr. Hari Shankar Mahato**

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