

Curriculum Vitae for Esteban Cárdenas

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Education

2019 - Present, Ph.D. Student in Mathematics, The University of Texas at Austin.

Advised by Thomas Chen.

2016 - 2019, B.S. in Mathematics, Pontificia Univerisdad Católica de Chile.

2014 - 2018, B.S. in Physics, Pontificia Universidad Católica de Chile.

Publications

Research articles

- [1] *Tunneling estimates for two-dimensional perturbed magnetic Dirac systems.* with B. Pavez and E. Stockmeyer. Preprint (2023).
- [2] *Norm convergence of confined fermionic systems at zero temperature.* Preprint (2023).
- [3] *On the effective dynamics of Bose-Fermi mixtures,* with J.K Miller and N. Pavlović. Preprint (2023).
- [4] *Quantum Boltzmann dynamics and bosonized particle-hole interactions in fermion gases,* with T. Chen. Preprint (2023).
- [5] *Derivation of a Boltzmann equation with higher-order collisions from a generalized Kac model.* with N. Pavlović and W. Warner. Preprint (2022).
- [6] *Tracer particles coupled to an interacting boson gas.* Published in Journal of Functional Analysis (2022).
- [7] *On the asymptotic dynamics of 2-D magnetic quantum systems,* with D. Hundertmark, E. Stockmeyer and S. Vugalter. Published in Annales Henri Poincaré (2021).
- [8] *Spectral properties of Landau Hamiltonians with non-local potentials,* with G. Raikov and I. Tejada. Published in Asymptotic Analysis (2020).
- [9] *Domain-wall dynamics for an in-plane magnetized thin film with a large perpendicular hard-axis anisotropy including the Dzyaloshinskii-Moriya interaction,* with M. C. Depassier. Published in Physical Review B (2018).

Conference articles

- [1] *Pseudo-Differential Perturbations of the Landau Hamiltonian.* In: Miranda, P., Popoff, N., Raikov, G. (eds) Spectral Theory and Mathematical Physics. Latin American Mathematics Series. Springer, Cham. (2020)

Distinction

Provost's Graduate Excellence Fellowship, UT Austin. August 2019 – July 2024.

Presentations

- 2023 *AG Seminar, Mathematische Physik.* Karlsruher Institut für Technologie.
Analysis and Math. Physics Seminar. Ludwig-Maximilian Universität München.
Mathphys Analysis Seminar. Institute of Science and Technology Austria.
Analysis Seminar. UT Austin.
- 2022 *Munich-Aarhus-Santiago Seminar in Mathematical Physics.*
- 2021 *AG Seminar, Mathematische Physik.* Karlsruher Institut für Technologie.
- 2018 *International Conference Spectral Theory and Mathematical Physics.* PUC.

Teaching Experience

- 2023 *Teaching Assistant.* Theory of Probability (graduate). UT Austin, Fall semester.
- 2022 *Teaching Assistant.* Calculus for Economics. UT Austin, Fall semester.
- 2021 *Teaching Assistant.* Real Analysis (undergraduate). UT Austin, Fall semester.
- 2015 *Teaching Assistant.* Electricity and Magnetism. PUC.
Teaching Assistant. Classical Mechanics for Engineering. PUC.

Service

Organizer of the Junior Analysis Seminar. UT Austin, 2022–2023.
Member of the Graduate Student Committee. UT Austin, 2021–2022.
Undergraduate Mentor for Grant Kupler. Directed Reading Program, UT Austin. Fall 2020.

Languages

Spanish (native), English (fluent), German (basic).