Shrey Aryan

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Research Interests

I am broadly interested in Geometric Analysis and PDEs.

Education

MIT, Cambridge, USA 2022 - Present
PhD, Mathematics, Landis Fellow
Advisor: Prof. Tobias Colding

ETH, Zürich, Switzerland 2020 - 2022
M.S., Mathematics, ESOP Scholar
Thesis: Stability of Hardy Littlewood Sobolev Inequality
Advisor: Prof. Alessio Figalli

École Polytechnique, Palaiseau, France 2017 - 2020
B.S., Mathematics and Computer Science, Class Valedictorian
Thesis: Existence of two-solitary waves with logarithmic distance for the nonlinear Klein–Gordon equation
Advisor: Prof. Yvan Martel

Publications

1. Entropic Selection Principle for Monge's Optimal Transport (joint with Promit Ghosal). arXiv:2502.16370 [math.PR]
2. Soliton Resolution for the energy-critical nonlinear heat equation in the radial case . arXiv:2405.06005 [math.AP].
3. Free energy minimizers with radial densities: classification and quantitative stability (joint with Lauro Silini). arXiv:2412.03997 [math.AP]
4. Stability of Wu's logarithmic Sobolev inequality via the Poisson-Föllmer process (joint with Yair Shenfeld and Pablo López Rivera). arXiv:2410.06117 [math.PR].
5. Concavity for elliptic and parabolic equations in complex projective space (joint with Mike Law). arXiv:2403.16783 [math.AP].
6. Overdetermined problems with homogeneous weights in the Euclidean plane (joint with Serena Dipierro and Enrico Valdinoci). Submitted.
7. Trend to equilibrium for flows with random diffusion (joint with Matthew Rosenzweig and Gigliola Staffilani), International Mathematics Research Notices (2024), arXiv:2307.03147 [math.AP].

8. Stability of Hardy Littlewood Sobolev Inequality under Bubbling, Calc. Var. Partial Differential Equations 62 (2023), no.8, Paper No. 223, arXiv:2109.12610 [math.AP].

9. Existence of two-solitary waves with logarithmic distance for the nonlinear Klein-Gordon equation, Commun. Contemp. Math. 24, 2050091 (2020), arXiv:2010.04852 [math.AP].