

TOPICS IN TOPOLOGY

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I work in algebraic topology. Large part of my research is in homotopy theory, and I also like geometric problems involving manifolds and spaces of embeddings. I am particularly interested in applying methods of (higher) category theory to problems in algebraic and geometric topology. In one of my recent papers (joint with T. Barthel, D. Heard and B. Sanders) we described the poset of prime ideals of the category of polynomial endofunctors of the category of spectra [1]. In another paper, currently my most recent, I developed a topological approach to the homological algebra of functors from groups to abelian groups [2]. Each of these papers raises interesting questions that are suitable for a PhD topic. But I believe that it usually works best if a project emerges from discussions between student and advisor.

If you are a master (or even in some cases bachelor) student with solid background and research interest in algebraic topology, I encourage you to apply to Stockholm University and mention me in your application.

REFERENCES

- [1] Arone, G.; Barthel, T.; Heard, D.; Sanders, B. *The spectrum of excisive functors*, Invent. Math. 241 (2025), no. 2, 363–464.
- [2] Arone, G. *Polynomial functors from free groups to a stable infinity-category*, preprint 2025, <https://arxiv.org/abs/2504.04114>