Oscar Bendix Harr

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Figure 1: Me

Date of birth	Apr 23, 1999
Nationality	Danish
Pronous	he/him

Research interests

I am broadly interested in algebraic and geometric topology, homotopy theory, and higher category theory. More specifically, I am currently thinking about

- stable and unstable phenomena in the cohomology of moduli spaces; and
- categories of (derived) sheaves and their applications to geometric topology.

Employment

Oct 2025–Oct 2027 Postdoctoral Fellow in Algebra and Geometry (mentor: Dan Petersen)
Stockholm University

Education

2022–2025 PhD in Mathematics ("Sheaves and moduli spaces of manifolds", adv. Jesper Grodal and Nathalie Wahl)
University of Copenhagen

2017–2022 BSc & MSc in Mathematics
University of Copenhagen

Publications and preprints

1. **Disordered arcs and Harer stability** (with Max Vistrup and Nathalie Wahl), in High. Struct. 8(1), 193-223 (2024).
2. **Compact sheaves on a locally compact space**, in Proc. Amer. Math. Soc. 153(1), 55–68 (2025).
3. **Twisted homology stability of O_n for valuation rings**, in J. Algebra 690, 304–339 (2026).
4. **The derived category of a locally compact space is rarely smooth**, preprint 2023 (https://arxiv.org/abs/2311.03121).
5. **Whitehead torsion and the kernel of assembly**, preprint 2026 (https://arxiv.org/abs/2604.19208).
6. **Topological fixed point theory revisited** (with Florian Riedel), in preparation.
7. **Reconstruction of a graph from the derived category**, in preparation.
8. **Improved homological stability for handlebody mapping class groups**, in preparation.

Conference talks

1. "E_2-cells and handlebody mapping class groups", Topology of Moduli Spaces aka Ulrike Tillmann's 60th birthday conference (Copenhagen), Aug 2024.
2. "The tautological ring of the moduli space of handlebodies", Young Topologist Meeting (Stockholm), Jun 2025.

Research talks

1. "Improved homological stability for the moduli of handlebodies", QM Research Seminar @ SDU Centre for Quantum Mechanics, Oct 2024.
2. "The tautological ring of the moduli space of handlebodies", Oberseminar @ Münster University, May 2025.
3. "Stokes theorem and characteristic classes for handlebody bundles", Bonn Topology Seminar @ Bonn University, Jun 2025
4. "Stokes theorem and characteristic classes of manifold bundles", Geometry and Topology Seminar @ Uppsala University, Oct 2025.
5. "Stokes theorem and characteristic classes of manifold bundles", Topological Activities @ Stockholm University, Oct 2025.
6. "Lefschetz–Nielsen fixed point theory in dualizable categorie", Algebra & Geometry Seminar @ Stockholm University and KTH, Dec 2025.

Teaching experience

1. **Teaching assistant** @ University of Copenhagen (2019–2024). Directed exercise sessions and graded assignments + exams in various courses in topology, analysis, algebra, geometry, and discrete mathematics at undergraduate, advanced undergraduate, and graduate level.
2. **Research internship co-supervisor** @ University of Copenhagen (2023). Co-supervised Tyra Cortinez Samenius's research internship together with Nathalie Wahl, based on our joint work with Max Vistrup.
3. **SPS Academic Mentor** @ University of Copenhagen (2023–2025). I provided one-on-one mentoring in the *Specialpædagogisk støtte* ("Special pedagogical aid") program, which supports university students with disabilities.

Organization

1. **Mini-workshop on Bergström–Diaconu–Petersen–Westerland** @ University of Copenhagen, May 2023.
2. **Exit paths and stratified homotopy types** (conference) @ University of Copenhagen, Jun 2024.
3. **Cool-loquium** @ University of Copenhagen, 2024–2025 (biweekly research seminar).

Outreach

1. De unge forskere (2024), video interview (link) by the Danish National Research Fund (DNRF).
2. PhD-studier i matematik (2024), career talk for incoming first-year students.
3. Culture night (2024), presented homotopical puzzles to non-mathematicians.

Miscellaneous

Between the ages of 8 and 15, I lived in Singapore, where I met my now wife Bella. I speak English and Danish, and like many mathematicians I can read French and—as long as it's about math—German.[1] My non-math interests include philosophy, history, cooking, eating, *X-files*, *Star Trek*, and above all spending time with friends and family.

[1] *Es ist offenbar daß...*