

# MARIUS NIELSEN

Trondheim, Norway.  
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## EDUCATION

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**Norwegian University of Science and Technology, Norway** *August 2022 - Present*  
PhD program in Mathematics  
Topology group - Department of Mathematical Sciences  
Supervisor: Drew Heard

**University of Copenhagen, Denmark** *June 2022*  
Master's program in Mathematics *Grade point average 11.2*  
Department of Mathematical Sciences  
Master's thesis: *The  $Q$ -shaped derived category.* - Supervisor: Henrik Holm

**University of Copenhagen, Denmark** *June 2020*  
Bachelor of Science *Grade point average 10.0*  
Department of Mathematical Sciences  
Bachelor's thesis: *On homotopy colimits.* - Supervisor: Piotr Pstragowski

## RESEARCH

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I am broadly interested in stable homotopy theory, tensor-triangulated geometry and their interactions with geometry.

**On the Geometrization of Synthetic Spectra.** *In preparation*  
 **$K(n)$ -local homotopy in synthetic spectra.** *Joint work with Torgeir Aambø* *In preparation*  
**The picard group of  $\mathrm{Exc}(Sp^\omega, Sp)$ .** *In preparation*  
**The presentable stable envelope of an exact category.** *Joint with Christoph Winges*

## ORGANIZATION

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**Topology seminar**Xiv *Fall 2024 - Present*  
**Reading group on Ambidexterity** *Fall 2024*  
**Reading group on Algebraic K-theory** *Spring 2024*  
**Reading group on Higher Algebra** *Fall 2020*  
**Reading group on simplicial homotopy theory** *Summer 2020*  
**Breakfast lectures at MATH** *Fall 2019 - Summer 2022*  
**Student colloquiums MATH** *Fall 2019 - Summer 2022*  
**Mentor at MATH** *2018 - Summer 2022*

## TALKS GIVEN

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**On the Geometrization of Synthetic spectra.** - *Research Seminar Homotopy Theory, University of Bonn - May 2025.*  
**On the Geometrization of Synthetic spectra.** - *Algebraic Topology seminar, University of Oslo - December 2024.*  
**On the Geometrization of Synthetic Spectra.** - *Norwegian Topology Meeting, Trondheim - August 2024.*  
 **$K(n)$ -local homotopy in synthetic spectra.** - *Summer School Interactions between Algebra, Equivariance, and Homotopy Theory - June 2024.*  
**Trace methods in Algebraic K-theory.** - *Reading seminar on Algebraic K-theory. Spring 2024 -*

NTNU.

**The universal property of K-theory.** - *Reading seminar on Algebraic K-theory. Spring 2024 - NTNU.*

**Nilpotence and descent in equivariant homotopy theory.** - *Topics course in equivariant homotopy theory. Fall 2023 - NTNU.*

**Chromatic homotopy theory, from the perspective of formal groups.** - *Independent reading seminar. Spring 2023 - NTNU.*

**Stable recollement and idempotent algebras.** - *Topics in Algebraic Topology blok 2 - 2021 at UCPH.*

**Combinatorial Species and Joyal's proof for Cayley's formula for counting trees.** - *Invitation to Combinatorics Blok 2 - 2021 at UCPH.*

**Symmetric monoidal categories & Group completion theorem using methods of T. Nikolaus.** - *Reading group on Algebraic K-theory.*

**Monadicity of the Bousfield-Kuhn functor.** - *Topics in Algebraic Topology 2020/2021 at UCPH.*

**Introduction to stable  $\infty$ -categories and prestable  $\infty$ -categories.** - *Topics in Algebraic Topology 2020/2021 at UCPH.*

**Stable  $\infty$ -categories and the derived  $\infty$ -category of a ring.** - *Reading group on Higher Algebra 2020*

**Adjunctions, (co)limits, Yoneda and Kan extensions.** - *Reading group in simplicial homotopy theory Summer 2020*

**String diagram formalism and symmetric fusion categories.** - *Student colloquium at MATH 2019*

## CONFERENCES ATTENDED

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**Arbeitsgemeinschaft: Algebraic K-Theory and the Telescope Conjecture** - *Oberwolfach October 2024.*

**Young Topologist Meeting** - *Münster July 2024.*

**Dualizable categories and continuous K-theory** - *UCPH June 2024. Parametrized homotopy theory - UCPH September 2023.*

**Young Topologist Meeting** - *EPFL July 2023.*

**Masterclass on Higher Representation Theory** - *UCPH March 2023.*

**Topological Hochschild Homology and Zeta Values** - *UCPH February 2023.*

**Spectra Triangles and Higher Structures** - *Bonn December 2022.*

**Young Topologist Meeting** - *UCPH July 2022.*

**Masterclass on 'High dimensional Cohomology of Moduli spaces'** - *UCPH June 2021*

**Masterclass on Condensed Mathematics** - *9th to 13th of November 2020 at UCPH.*

**SYM 10 Years Old** - *24th to 28th of June 2019 at UCPH.*