

Lyne Moser | Curriculum Vitae

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Education

- Feb. 2021 – **Postdoc**, Max Planck Institute for Mathematics, Bonn, Germany.
Sep. 2022 Postdoc in algebraic topology, homotopy theory, and higher category theory.
- March 2017 – **Ph.D.**, *Homotopical relations between 2-dimensional categories and their ∞ -analogues*, EPFL, Switzerland.
Feb. 2021 Ph.D. in algebraic topology, homotopy theory, and higher category theory, under the supervision of Jérôme Scherer and Kathryn Hess.
- Jan. – June 2020 **“Higher Categories and Categorification” program**, MSRI, Berkeley, US.
Under the support of a Doc.Mobility Swiss NSF grant.
- Sep. 2015 – **M.Sc. in Mathematics**, EPFL, Switzerland.
Feb. 2017 Semester project on singular homology, cellular homology, and group homology, under the supervision of Jérôme Scherer.
- Aug. – Dec. 2016 **Master thesis**, *Basic localizers and derivators*, Johns Hopkins University, Baltimore, US.
Master thesis in category theory, under the supervision of Emily Riehl.
- Sep. 2012 – **B.Sc. in Mathematics**, EPFL, Switzerland.
July 2015 Semester project on model categories and simplicial sets, under the supervision of Jérôme Scherer.

Scholarship

- Jan. – June 2020 **Doc.Mobility fellowship**, *Swiss National Science Foundation*, project number P1ELP2_188039.
Swiss fellowship for PhD students to fund a research stay at MSRI, Berkeley, during the emphasis semester on “Higher Categories and Categorification”.

Publications and preprints

Published papers

- March 13, 2019 **Injective and projective model structures on enriched diagram categories**, In: *Homology, Homotopy, and Applications*, 21(2):279–300, 2019, doi:10.4310/HHA.2019.v21.n2.a15.

Accepted preprints

- July 1, 2020 **A model structure for weakly horizontally invariant double categories**, joint with Maru Sarazola and Paula Verdugo, to appear in *Algebraic and Geometric Topology*, preprint on arXiv:2007.00588, arxiv.org/abs/2007.00588.
- April 29, 2020 **A 2Cat-inspired model structure for double categories**, joint with Maru Sarazola and Paula Verdugo, to appear in *Cahiers de Topologie et Géométrie Différentielle Catégoriques*, preprint on arXiv:2004.14233, arxiv.org/abs/2004.14233.
- January 15, 2020 **Stable homotopy hypothesis in the Tamsamani model**, joint with V. Ozornova, S. Paoli, M. Sarazola, and P. Verdugo, Proceedings of Women in Topology III to appear in *Topology and Its Applications*, preprint on arXiv:2001.05577, arxiv.org/abs/2001.05577.

Submitted preprints

- September 11, 2020 **Bi-representations and bi-initial objects are not so different**, joint with tslil clingman, preprint on arXiv:2009.05545, arxiv.org/abs/2009.05545.

- July 3, 2020 **A double $(\infty, 1)$ -categorical nerve for double categories**, preprint on arXiv:2007.01848, arxiv.org/abs/2007.01848.
- April 3, 2020 **2-limits and 2-terminal objects are too different**, joint with tsilil clingman, preprint on arXiv:2004.01313, arxiv.org/abs/2004.01313.

Organization of conferences

- July, 2019 **Young Topologists Meeting 2019**, EPFL, Switzerland.
Conference for graduate students, PhDs, and junior researchers in topology.

Organization of working groups

- Fall 2018 **Topological cyclic homology**, EPFL, Switzerland.
Reading group on the paper “On topological cyclic homology” by Thomas Nikolaus and Peter Scholze.
- Fall 2019 **Infinity-operads and Day convolution in Goodwillie calculus**, EPFL, Switzerland.
Reading group on the paper “Infinity-operads and Day convolution in Goodwillie calculus” by Michael Ching.
- Fall 2020 **Homotopy type theory**, EPFL, Switzerland.
Working group in homotopy type theory: simplicial and $(\infty, 1)$ -topos models of univalent foundations and modalities.

Talks

- June 2021 **Higher categories and the (∞, n) -category of bordisms**, *Topology Seminar*, MPIM, Bonn, Germany.
- June 2021 **Towards a construction of limits in $(\infty, 2)$ -categories**, *Topology Seminar*, MPIM, Bonn, Germany.
- June 2021 **Defining limits in the ∞ -world**, *Viva Talbot! A virtual Talbot Workshop retrospective*, MIT, Boston, US.
- February 2021 **A double $(\infty, 1)$ -categorical nerve for double categories**, *Algebra/Topology Seminar*, University of Copenhagen, Denmark.
- September 2020 **A double $(\infty, 1)$ -categorical nerve for double categories**, *AG Seminar*, Universität Regensburg, Germany.
- July 2020 **A double $(\infty, 1)$ -categorical nerve for double categories**, *Topology Seminar*, EPFL, Switzerland.
- Feb. 2020 **2-fold complete Segal spaces and Θ_2 -spaces**, *Higher Categories and Categorification*, MSRI, Berkeley, US.
- Nov. 2019 **2-limits are double terminal**, invited speaker, *Postgraduate Conference in Category Theory and its Applications*, University of Leicester, UK.
- July 2019 **Truncated spaces and spectra**, *Utrecht Infinity Workshop*, Utrecht University, Netherlands.
Workshop on the paper “The Picard group of topological modular forms via descent theory” by Akhil Mathew and Vesna Stojanoska.
- June 2019 **An adventure toward $(\infty, 2)$ -limits**, *Topology Seminar*, EPFL, Switzerland.
- July 2018 **Injective and projective model structures on enriched diagram categories**, *Young Topologists Meeting*, University of Copenhagen, Denmark.
- June 2018 **Injective and projective model structures on enriched diagram categories**, invited speaker, *Métodos categóricos y homotópicos en álgebra, geometría y topología*, Almería, Spain.
- May 2018 **The universal properties of adjunctions, limits and colimits in an ∞ -cosmos**, *MIT Talbot Workshop*, Portland, US.
Workshop on the book “Elements of ∞ -categories” by Emily Riehl and Dominic Verity.

- Apr. 2018 **Injective and projective model structures on enriched diagram categories**, *Oberseminar Topologie*, Universität Osnabrück, Germany.
- Mar. 2018 **Symmetric monoidal ∞ -categories**, *Utrecht Infinity Workshop*, Utrecht University, Netherlands.
Workshop on the paper “Universality of multiplicative infinite loop space machines” by David Gepner, Moritz Groth, and Thomas Nikolaus.
- Dec. 2017 **Introduction to model categories**, *Category theory seminar*, Johns Hopkins University, Baltimore, US.
- Nov. 2017 **Injective and projective model structures on enriched diagram categories**, *Topology Seminar*, EPFL, Switzerland.
- Aug. 2017 **Straightening-Unstraightening in 2-categories**, *Utrecht Infinity Workshop*, Utrecht University, Netherlands.
Workshop on selected chapters of the books “Higher Topos Theory” and “Derived Algebraic Geometry” by Lurie.

Teaching activities

Courses

- Spring 2017 **Topology**, Kathryn Hess, EPFL, Switzerland.
Main teaching assistant organizing the exercise sessions for 30 students.
- Fall 2017 **Linear Algebra**, Jérôme Scherer, EPFL, Switzerland.
Main teaching assistant organizing the exercise sessions for 300 students and 10 teaching assistants.
- Spring 2018 **Topology**, Kathryn Hess, EPFL, Switzerland.
Main teaching assistant organizing the exercise sessions for 70 students.
- Fall 2018 **Linear Algebra**, Jérôme Scherer, EPFL, Switzerland.
Main teaching assistant organizing the exercise sessions for 270 students and 10 teaching assistants.
- Spring 2019 **Topology**, Kathryn Hess, EPFL, Switzerland.
Main teaching assistant organizing the exercise sessions for 60 students.
- Fall 2019 **Group Theory**, Kathryn Hess, EPFL, Switzerland.
Main teaching assistant organizing the exercise sessions for 90 students and 4 teaching assistants.
- Fall 2020 **Group Theory**, Kathryn Hess, EPFL, Switzerland.
Main teaching assistant organizing the exercise sessions for 90 students and 4 teaching assistants.

Others

- 2017 – 2019 **Occasional teaching for the Euler course**, EPFL, Switzerland.
Teaching theory and exercise sessions for an accelerated mathematics program for gifted youth.
- Easter 2017, 2018, and 2019 **Séminaire Burlet**, Ravoire, Switzerland.
Teaching assistant for a revision week for EPFL B.Sc. students in mathematics.

Supervision of students

- Spring 2018 **Topological K-Theory**, Aurel Pichollet–Mugnier, EPFL, Switzerland.
- Spring 2019 **A model structure on the category of simplicial sets**, Dolores Dupont, EPFL, Switzerland.
- Fall 2020 **Grothendieck topoi**, Cloé Pointet, EPFL, Switzerland.

Selected conferences

- Feb. 2017 **Conference for “Young researchers in homotopy theory and categorical structures”**, MPIM, Bonn, Germany.

- July 2017 **Young Topologists Meeting 2017**, KTH Royal Institute of Technology and Stockholm University, Stockholm, Sweden.
- Sep. 2017 **European Autumn School in Topology 2017**, Utrecht, Netherlands.
- Nov. 2017 **Women in Topology Workshop**, MSRI, Berkeley, US.
- Apr. 2018 **Rigidity and algebraic models in stable homotopy theory**, University of Copenhagen, Denmark.
- May 2018 **MIT Talbot Workshop 2018: Model independent theory of ∞ -categories**, Portland, US.
- July 2018 **Higher structures in homotopy theory**, Isaac Newton Institute, Cambridge, UK.
- July 2018 **Young Topologists Meeting 2018**, University of Copenhagen, Denmark.
- Sep. 2018 **European Autumn School in Topology 2018**, Utrecht, Netherlands.
- Aug. 2019 **Women in Topology III**, HIM, Bonn, Germany.
- Nov. 2019 **Postgraduate Conference in Category Theory and its Applications**, University of Leicester, UK.
- Feb. 2020 **Connections for Women and Introductory Workshop: Higher categories and categorification**, MSRI, Berkeley, US.