

Lyne Moser | Curriculum Vitae

✉ moser@mpim-bonn.mpg.de • 🌐 lynemoser.com

Academic Positions

- Feb. 2021 – **Postdoc**, Max Planck Institute for Mathematics, Bonn, Germany.
Sep. 2022 Postdoc in algebraic topology, homotopy theory, and higher category theory.

Education

- 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, Bekeley, 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

- June 2022 **Stable homotopy hypothesis in the Tamsamani model**, joint with V. Ozornova, S. Paoli, M. Sarazola, and P. Verdugo, In: *Topology and Its Applications*, 2022, doi:10.1016/j.topol.2022.108106.
Apr. 2022 **A 2Cat-inspired model structure for double categories**, joint with Maru Sarazola and Paula Verdugo, In: *Cahiers de Topologie et Géométrie Différentielle Catégoriques*, Volume LXIII (2022), pp. 184-236, cahierstgdc:volume-lxiii-2022, extended version on arXiv:2004.14233.
Mar. 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

- Sep. 2020 **Bi-representations and bi-initial objects are not so different**, joint with tsilingman, to appear in *Cahiers de Topologie et Géométrie Différentielle Catégoriques*, preprint on arXiv:2009.05545.
July 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.

Other preprints

- June 2022 **Model independence of $(\infty, 2)$ -categorical nerves**, joint with Viktoriya Ozornova and Martina Rovelli, preprint on [arXiv:2206.00660](#).
- July 2020 **A double $(\infty, 1)$ -categorical nerve for double categories**, preprint on [arXiv:2007.01848](#).
- April 2020 **2-limits and 2-terminal objects are too different**, joint with tsilil clingman, preprint on [arXiv:2004.01313](#).

Organization of conferences

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

Teaching activities

Courses as a head teaching assistant

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

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, 2019 **Séminaire Burlet**, Ravoire, Switzerland.
Teaching assistant for a revision week for EPFL B.Sc. students in mathematics.

Supervision of students

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

Talks

- April 2022 **Homotopy coherent nerve for (∞, n) -categories**, *TopICS: Topology Intercity Seminar, Utrecht-Nijmegen*, Utrecht University, Netherlands.
- April 2022 **Defining limits in $(\infty, 2)$ -categories**, *Homotopy Theory Seminar*, University of Pennsylvania, Philadelphia, US.

- Feb. 2022 **Defining limits in $(\infty, 2)$ -categories**, *Logic and higher structures*, CIRM, Marseille, France.
- 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.
- Feb. 2021 **A double $(\infty, 1)$ -categorical nerve for double categories**, *Algebra/Topology Seminar*, University of Copenhagen, Denmark.
- Sep. 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.