

LMFI Cours Algèbre Homotopique et catégories supérieures 2021

List of presentations for the final evaluation of the course

	10 : 30 – 11 : 15	11 : 15 – 12	14 – 14 : 45	14 : 45 – 15 : 30
1/4	Reboullet	Saadia		
6/4		Jubert		
8/4	Pradal	Moreau		
9/4	Suzanne	Yang		
12/4	Bartoli	Tsokurov		
16/4			Shautsou	Oléon

Presentations should be accessible to all students following the course, and should contain some technical definitions/constructions/proofs (not too much) and should at the same time present a picture and tell a story, all not at light speed! Impossible? Ce n'est pas français...

The format of each presentation is 40 minuts + 5 minuts questions (students in the audience are also welcome to ask questions!). I recommend you to repeat your talk and try to schedule like 35 minuts, just to be on the right side of the 40 minuts limit, which you should consider sharp.

Each presentation should be written (manuscript or typed) and I shall also read the slides off-line, and the clarity, explicitness and rigor of the written presentation will be evaluated as well! So please, don't forget to send me your pdf after the oral presentation. You are free to make a few adjustments after the presentation, as I myself did for my own notes. It would be nice if I receive your presentation, say, not later than two days after the "soutenance".

Categories

C-1) J. Adamek and J. Rosicky, Locally presentable and accessible categories, London Mathematical Society, sections 1.A, 1.B, 1.C (presentability versus orthogonality) (I have a copy on my computer if needed).

C-2 → Léo Bartoli) C. Berger, P.-A. Melliès, M. Weber, Monads with arities and their associated theories <https://arxiv.org/abs/1101.3064>

C-3) J. Frey, Notes on 2-categorical limits (a short expository note, that will induce reading material in some of the references)

<https://drive.google.com/file/d/0B6cQeyZSnWMLcm1jNkd2eHlSWTA/view>

Higher categories

HC-1 → Hector Suzanne) E. Finster, S. Mimram, A Type-Theoretical Definition of Weak ω -Categories <https://arxiv.org/abs/1706.02866>

HC-2) J. Penon, Approche polygraphique des ∞ -catégories non strictes http://www.numdam.org/article/CTGDC_1999__40_1_31_0.pdf

HC-3) C. Berger, A cellular nerve for higher categories <https://math.unice.fr/~cberger/nerve.pdf>

HC-4) E. Riehl and M. Shulman, A type theory for synthetic ∞ -categories <https://arxiv.org/abs/1705.07442>

Homotopical algebra

HA-1) Provide proofs for the exercises related to bar construction (namely Cours 5 p. 20 and 23).

HA-2) D.-C. Cisinski, Higher categories and homotopical algebra, section 2.4 “Model structures ex-nihilo” (a recipe to build model structures on presheaf categories) <http://www.mathematik.uni-regensburg.de/cisinski/CatLR.pdf>

HA-3 → Vincent Moreau) D.-C. Cisinski, Images directes cohomologiques dans les catégories de modèles (homotopical limits via Grothendieck’s theory of derivators) http://www.math.univ-toulouse.fr/~dcisinsk/AMB2003_10_2_195_0.pdf

HA-4 → Zongyun Yang) D. Dugger, Replacing model categories with simplicial ones <https://www.ams.org/journals/tran/2001-353-12/S0002-9947-01-02661-7/S0002-9947-01-02661-7.pdf>

HA-5 → Gabriel Saadia) A. Joyal, Quasi-categories vs simplicial categories [https://www.math.uchicago.edu/~may/IMA/Incoming/Joyal/QvsDJan9\(2007\).pdf](https://www.math.uchicago.edu/~may/IMA/Incoming/Joyal/QvsDJan9(2007).pdf)

HA-6) J.-M. Cordier and T. Porter, Homotopy coherent category theory <https://www.ams.org/journals/tran/1997-349-01/S0002-9947-97-01752-2/S0002-9947-97-01752-2.pdf>

HA-7) W. Dwyer and D. Kan, Function complexes in homotopical algebra <https://people.math.rochester.edu/faculty/doug/otherpapers/dwyer-kan-3.pdf>

HA-8) P. Cagne and P.-A. Melliès, On bifibrations of model categories <https://arxiv.org/abs/1709.10484>

HA-9) M. Bayeh, K. Hess, V. Karpova, M. Kedziorek, E. Riehl, B. Shipley, Left-induced model structures and diagram categories <https://arxiv.org/abs/1401.3651>

HA-10 → Stiéphen Pradal) G. Maltsiniotis, La théorie de l’homotopie de Grothendieck (chapter 1 until 1.7.10) <https://webusers.imj-prg.fr/~georges.maltsiniotis/ps/prstnew.pdf>

HA-11) R. Garner, Understanding the small object argument <https://arxiv.org/abs/0712.0724>

HoTT / constructivity papers

HoTT-1 → Aliaksandr Shautsou) C. Kapulkin, P. Lefanu Lumsdaine, The simplicial model of univalent foundations (after Voevodsky), <https://arxiv.org/abs/1211.2851>

HoTT-2 → Moana Jubert) C. Cohen, T. Coquand, S. Huber, A. Mörtberg, Cubical type theory: a constructive interpretation of the univalence axiom <https://arxiv.org/abs/1611.02108>

HoTT-3) T. Coquand, S. Huber, A. Mörtberg, On Higher Inductive Types in Cubical Type Theory <https://arxiv.org/abs/1802.01170>

HoTT-4) B. van den Berg, R. Garner, Types are weak omega-groupoids <https://arxiv.org/abs/0812.0298>

HoTT-5 → Sarah Reboulet) Non-Constructivity in Kan Simplicial Sets, M. Bezen, T. Coquand, E. Parmann, <https://drops.dagstuhl.de/opus/volltexte/2015/5157/pdf/12.pdf>

HoTT-6 → Emile Oléron) J. Avigad, C. Kapulkin, P. LeFanu Lumsdaine, Homotopy limits in type theory <https://arxiv.org/abs/1304.0680>

HoTT-7) M. Shulman, Univalence for inverse diagrams and homotopy canonicity <https://arxiv.org/abs/1203.3253>

HoTT-8 → Alex Tsokurov) J. Emmenegger, A category-theoretic version of the identity type weak factorization system <https://arxiv.org/abs/1412.0153>