

Working group on infinity categories

Fall Semester ROOM 3L15, tuesdays 10-12. We follow the book "introduction to infinity categories" of Markus Land. The idea is to roughly cover one chapter per lecture.

1. 22 septembre : 1.1. Categories and simplicial set : limit, colimit in categories, Kan extension, simplicial sets and geometric realization, Nerve of a category.
2. 29 septembre : 1.2 Definition of quasi-categories, homotopy category, enriched categories (ex : simplicial categories) Homotopy coherent nerve, the category of spaces and the category of infinity categories . .
3. 6 Octobre : 1.3 Anodyne maps and fibrations
4. 13 Octobre : 1.4 Joins and slice.
5. 20 Octobre : finish 1 , exercises...
6. Holiday break
7. 10 Novembre : 2.5 : Joyal lifting.
8. 17 Novembre : 2.6 : Pointwise criterion for natural equivalences.
9. 24 Novembre : 2.7 : Fully faithful and essentially surjective functors.
10. 1er Decembre : 2.8 : localization
11. 8 Decembre : 2.9 : Fat joins, Fat slices and mapping space.
12. 15 Decembre : Cartesian fibrations.

Spring semester (organized by Johannes Anschuetz and Lucas Mann).

We will focus on applications of higher categories in algebra and geometry. The focus will lie on examples, especially for limits and colimits in various situations. Topics will include sheaves of categories, derived completions, cotangent complexes, first steps in higher algebra among others.