

SEMINAR : (∞, n) -CATEGORIES
UNIVERSITÄT REGENSBURG, SS18

JUSTIN NOEL AND GEORGIOS RAPTIS

Schedule of Talks:

- (1) April 10 (Justin): Introduction – following Bergner’s two survey articles on $(\infty, 1)$ - and (∞, n) -categories. Discussion of the program and distribution of the talks.
- (2) April 17: Segal spaces – following Rezk *A model for the homotopy theory of homotopy theory*.
- (3) April 24 (Kim): Segal spaces and Quasi-categories – following Joyal-Tierney *Quasi-categories vs Segal spaces* (Sections 3-4).
- (4) May 8: n -fold Segal spaces and examples – following Lurie *$(\infty, 2)$ -categories and the Goodwillie Calculus I* (Chapter 1), Barwick *(∞, n) -Cat as a closed model category*.
- (5) May 15: Segal n -categories and comparisons – following Simpson *The homotopy theory of higher categories* (Parts III-IV), Lurie *$(\infty, 2)$ -Categories and the Goodwillie Calculus I* (Chapter 2).
- (6) May 22 (Vorlesungsfrei – perhaps on a different day in the week!): Introduction to scaled simplicial sets – following Lurie *$(\infty, 2)$ -Categories and the Goodwillie Calculus I*.
- (7) May 29: Cobordism categories and topological field theories – following Lurie *On the classification of topological field theories* (Sections 1.1-2.2).
- (8) June 5: Fully dualizable objects and the cobordism hypothesis – following Lurie *On the classification of topological field theories* (Sections 2.3-3.2).
- (9) June 12 (George): Proof of the cobordism hypothesis – following Lurie *On the classification of topological field theories* (Chapter 3).
- (10) June 19: Θ_n -spaces I: The Θ Construction – following Rezk *A cartesian presentation of weak n -categories* (Sections 2-5), Berger *Iterated wreath product of the simplex category and iterated loop spaces*.
- (11) June 26: Θ_n -spaces II: Cartesian presentations – following Rezk *A cartesian presentation of weak n -categories* (Sections 6-11).
- (12) July 3: Equivalence of models for (∞, n) -categories – following Bergner-Rezk *Comparison of models for (∞, n) -categories I*.
- (13) July 10: Unicity of the homotopy theory of higher categories – following Barwick-Schommer-Pries *On the unicity of the homotopy theory of higher categories*.