

Seminar Stable Homotopy Theory

1.10.-2.10.2020 and 8.10.2020 (Thursday and Friday)

Bratislava or Brno

The aim of the seminar is to understand some theory and examples about spectra.

We plan to follow [Hat02], [Swi02], [Ada74], maybe [Ada78] and something newer like [Sch07] or [BR20] that I am not an expert in.

Talks

- (1) **Introduction** LUDOVÍT BALKO
Blakers-Massey theorem, stable homotopy groups of spheres, definition of a spectrum and of an Ω -spectrum... [Hat02, Ch IV].
- (2) **Examples** TOMÁŠ RUSIN
Suspension spectra, Eilenberg-MacLane-spectra, Thom spectra, Madsen-Tillmann spectra, K -theory, [Hat02], [Swi02], [GMTW09].
- (3) **Representation theorems** MARTIN NIEPEL
[Hat02, Ch IV], [Swi02, Ch 9]
- (4) **Theory I** MARTIN ČADEK
[Ada74, III.2] or [Swi02, Ch 8]
- (5) **Theory II** TIBOR MACKO
[Ada74, III.3] or [Swi02, Ch 8]
- (6) **Modern spectra or smash products** LUKÁŠ VOKŘÍNEK
[Ada74, III.4] or [BR20] or [Sch07].

REFERENCES

- [Ada74] John Frank Adams. *Stable homotopy and generalised homology*. University of Chicago Press, Chicago, Ill., 1974. Chicago Lectures in Mathematics.
- [Ada78] John Frank Adams. *Infinite loop spaces*. Princeton University Press, Princeton, N.J., 1978.
- [BR20] David Barnes and Constanze Roitzheim. *Foundations of stable homotopy theory (to appear)*. Cambridge: Cambridge University Press, 2020.

- [GMTW09] Søren Galatius, Ib Madsen, Ulrike Tillmann, and Michael Weiss. The homotopy type of the cobordism category. *Acta Math.*, 202(2):195–239, 2009.
- [Hat02] Allen Hatcher. *Algebraic topology*. Cambridge University Press, Cambridge, 2002.
- [Sch07] Stefan Schwede. An untitled book project about symmetric spectra. 2007.
- [Swi02] Robert M. Switzer. *Algebraic topology – homology and homotopy. Reprint of the 1975 edition*. Berlin: Springer, reprint of the 1975 edition edition, 2002.