

DEFENSE OF THE DOCTORAL DISSERTATION

DEPARTMENT OF MATHEMATICS

“Algebraic Goodwillie spectral sequence”

Nikolai Konovalov

Friday, March 31, 2023

Time: 1:00 PM

Location: 125 Hayes-Healy Bldg

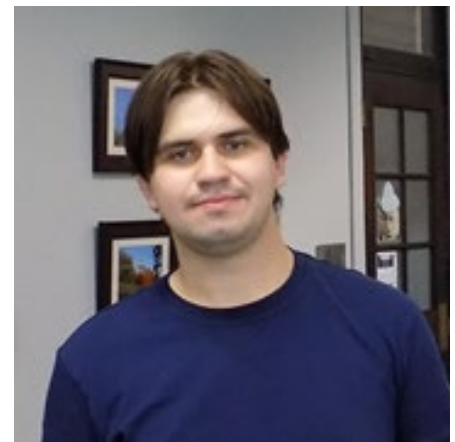
Examination Committee:

Mark Behrens, Advisor

Chris Schommer-Pries

Stephan Stolz

Larry Taylor



Abstract:

The spectral Lie operad is the Koszul dual operad to the cocommutative cooperad in the category of spectra. A spectral Lie algebra is an algebra over the spectral Lie operad. M. Behrens and J. Kjaer constructed so-called Dyer-Lashof-Lie power operations acting on the mod- p homology groups of a spectral Lie algebra. However, they computed relations between these operations only for $p=2$. In my talk, I will explain how to compute desired relations for each prime by using functor calculus in the category of simplicial restricted Lie algebras. The latter category might be thought as an algebraic approximation of the category of spaces, and so, algebraic calculations may be also helpful in understanding of the topological Goodwillie spectral sequence.