Copenhagen Masterclass 12–16 March 2018

Tensor triangular geometry and equivariant stable homotopy theory

Titles and abstracts

Markus Hausmann: The Balmer spectrum for compact Lie groups.

Abstract: This talk will be about the Balmer spectrum of the category of finite G-spectra for a compact Lie group G, with focus on the differences to the finite group case. In the first half I will describe the spectrum of finite rational G-spectra, as computed by Greenlees. In the second half I will report on on-going joint work and describe the integral answer for abelian compact Lie groups. I will also try to explain what we know and what we don't know integrally for general compact Lie groups.

Niko Naumann: One proof and one example.

Abstract: We complement one of the main lectures by explaining in some detail one out of two key ingredients in the determination of the Balmer spectrum of a finite abelian groups. We illustrate with examples the problem one encounters when trying to generalize to non-abelian groups; this in particular generates a very elementary but open question.

Beren Sanders: The spectrum of the category of derived Mackey functors.

Abstract: In this talk, I will discuss a project (joint with Irakli Patchkoria and Christian Wimmer) on computing the spectrum of the derived category of G-Mackey functors (in the sense of Kaledin) for G a finite group. This category can be regarded as a linearization of the G-equivariant stable homotopy category and our computation can be best appreciated in comparison with our earlier work (joint with Paul Balmer) on computing the spectrum of the G-equivariant stable homotopy category. As such, we will briefly review aspects of that previous work at the beginning of the talk. Ultimately, we will explain precisely how the spectrum of our linearized equivariant category lies between the spectrum of the equivariant stable homotopy category and the spectrum of the Burnside ring, being a refinement of the latter and a chromatic truncation of the former.

Vesna Stojanoska: Invertible objects and descent.

Abstract: You may have various reasons to classify invertible objects in your symmetric monoidal category of choice, in other words, to compute its Picard group. In general, Picard groups do not satisfy descent, making computations hard to tackle. However, in the presence of a homotopical enhancement of the category in question (meaning, a symmetric monoidal ∞-category), one can study a finer invariant, namely its Picard space, which does satisfy descent. I will discuss some techniques for computing Picard groups using descent on the space level, illustrated by examples coming from homotopy theory. This describes joint work with Heard and Mathew.