
Follow-Up-Workshop to TP
“Spectral Methods in Algebra, Geometry, and Topology”

August 24 - August 28, 2026

organized by

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Abstracts

Scott Balchin (Queen’s University Belfast)

Algebraic models for tt-categories: The why, what and how.

Abstract: This talk will provide a general overview of the tools which are available to us when aiming to construct algebraic models for tt-categories in their various flavours and guises. I will then discuss some of the progress since the HIM workshop on particular examples of the machinery in action.

Dave Benson (University of Aberdeen)

The Balmer spectrum of the Schur algebra

Abstract: This is a preliminary report of work in progress, joint with Iyengar, Krause and Pevtsova. The aim is to classify the thick subcategories of the bounded derived category of the Schur algebra in prime characteristic. The methods involve translating through Schur-Weyl duality and adapting methods developed by Balmer and Gallauer in a closely related context. Their tensor induced complexes don’t work in our context, and are replaced by Troesch complexes.

Martin Gallauer (Warwick University)

Survey on DPerm

Abstract: This talk is meant as introduction to and preparation for subsequent talks at this workshop on the derived category of permutation modules = modules over Bredon cohomology. I will survey the work joint with Paul Balmer on this subject, focusing on the developments since the trimester program.

Drew Heard (NTNU Trondheim)

A non-spatial frame of smashing ideals

Abstract: The smashing tensor ideals of a rigidly-compactly generated tensor-triangulated category form a frame, but it has remained unclear whether this frame must be spatial. I will give a negative answer, already for the unbounded derived category of a (necessarily non-noetherian) commutative ring, via an embedding of the frame of idempotent ideals into the frame of smashing ideals. This is joint work with Tobias Barthel.

Sam Miller (University of Georgia)

Some updates on permutation twisted cohomology

Abstract: Twisted cohomology for permutation modules, as first developed by Balmer—Gallauer then extended by the speaker, plays a crucial role in the tensor-triangular geometry of the derived category of permutation modules. We give a few updates on the status of developing a twisted cohomology theory for all finite groups and showing that it completely recovers the Balmer spectrum of the category. We also say some words on orientability of invertible objects and representation spheres. Parts of this talk are joint work in progress with J. O. Gómez.

Luca Pol (MPIM Bonn)

On the tt-geometry of global representations

Abstract: A global representation is a compatible collection of representations of the outer automorphism groups of the finite groups belonging to a family U . These arise in classical representation theory, in the study of representation stability, as well as in global homotopy theory. In this talk, I will discuss how to use tensor-triangular geometry to study the derived category of global representations over fields k of characteristic zero. In particular, I will present some calculations of Balmer spectra for various infinite families of finite groups. Depending on time I will also discuss the classification of localizing tensor ideals in global representation theory.

Beren Sanders (UC Santa Cruz)

An overview of the theory of stratification

Abstract: We will review the theory of stratification for classifying localizing ideals of tensor-triangulated categories and discuss how two complementary approaches together yield strong descent results. Time permitting, we will discuss recent results on the classification of homological and cohomological Bousfield classes.

Greg Stevenson (Aarhus University)

Peering through the lattice

Abstract: I'll give an overview of the lattice-theoretic approach to tensor triangular geometry. For essentially small tt-categories this seems to be just a rephrasing of the usual story (whose utility is perhaps a personal matter). However, if one looks a bit beyond this usual story, for instance by relaxing/removing the tensor product or passing to ind-completions, one can find a lot of inspiration by thinking in terms of lattices. I'll present some results and speculations to try to convey and share this inspiration.

Emmy van Rooy (UCLA)

Residual regularity for tt-categories

Abstract: In this talk, we introduce the new notion of 'residual regularity' for rigidly-compactly generated tt-categories, generalising the classical concept of regularity from algebraic geometry. The approach is based on the theory of homological residue fields, as developed by Balmer-Krause-Stevenson. Analysing residual regularity in the context of modular representation theory, we obtain a complete classification of finite groups G whose derived category of permutation kG -modules is residually regular. A core part of the proof is a technical result concerning finite separable extensions of tt-categories, which are generalisations of finite étale extensions in algebraic geometry. This technical result asserts that, under some mild additional conditions, a finite separable extension preserves and reflects residual regularity.

Jordan Williamson (Charles University in Prague)

Purity in tt-geometry

Abstract: I will explain how the homological and Balmer spectrum of a rigid tt-category and its functoriality can be obtained from the pure structure of the tt-category through the Ziegler spectrum. Time permitting, I'll explain some connections with rank functions and potential future directions. This is based on joint work with Isaac Bird and Alexandra Zvonareva.