Abstract 报告摘要汇总

DAY2：2022.1.18 Tuesday 周二

9:00-10:00 TALK 1
BIMSA: Assistant Researcher-Nanjun Yang 杨南君 ynj.t.g@126.com
Title: Split Milnor-Witt Motives
Abstract:

The Chow-Witt group is a kind of cohomology theory of smooth varieties which combines Chow groups and quadratic information of fields together. It admits realizations towards singular cohomology of both real and complex points, with significant applications in classifying vector bundles and Hermitian K-theory, as well as a refined version of enumerative geometry.

Recently, B. Calmès, F. Déglise and J. Fasel defined a kind of motivic theory representing the Chow-Witt groups, namely the Milnor-Witt (abbr. MW) motives. It's rationally equivalent to the motivic stable homotopy category defined by F. Morel.

In this talk, we introduce the notion of split MW-motives. Varieties whose MW-motives split have free complex cohomology and only 2-torsions in real cohomology. We compute the MW-motive of Grassmannians bundles and complete flags bundles, which turn out to fit the split pattern we desired. Moreover, some interesting observations of Bockstein cohomology will be presented.

10：30-11：30 TALK 2
BIMSA: Prof. Jie Wu 吴杰 wujie@bimsa.cn
Title: Interdisciplinary Questions in Algebraic Topology and Application
Abstract:

This talk will consist of two parts. In Part I, we will discuss applications of algebraic topology in data science, including a brief introduction to the classical topological data analysis (TDA), current development, our approaches in TDA and our incoming/future research on the topic. In Part II, we will discuss pure mathematical research in homotopy theory. We will concentrate on the discussions the connections between homotopy theory and the modular representation theory. After a brief introduction to the connections, we will discuss our recent progress on the topic.

DAY3：2022.1.19 Wednesday 周三

9:00-10:00 TALK 3
YMSC： Prof. Nicolai Reshetikhin reshetikhinn@yahoo.com
Title: Statistics of irreducible components in large tensor products of representations of simple Lie algebras.
Abstract:

The character measure on tensor product of finite dimensional representations of simple Lie algebras is considered. This measure is a deformation of the Plancherel measure on corresponding representations. For sl_2 the character measure has a simple physical meaning. It is the Boltzman measure for N atoms in the presence of strong magnetic field and large temperature. The limiting distribution when the number of factors goes to infinity is computed. This talk can be regarded as introcustion to asymptotic representation theory. Based on joint work with O. Postnova and V.

Serganova.

10：30-11：30 TALK 4
YMSC: Prof. Peng Shan 单芃 pengshan@tsinghua.edu.cn
Title: On the center of small quantum groups
Abstract:

We will explain a geometrical realisation of the center of small quantum groups in terms of cohomology of some affine Spaltenstein varieties. As application, this gives some evidence for a conjecture of Lachowska and Qi on the dimension of the center of small quantum groups. This is based on a joint work with R. Bezrukavnikov, P. Boixeda Alvarez and E. Vasserot.