
第一届代数与表示论前沿研讨会

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[首页](#)> [题目和摘要](#)

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广义路代数及其在表示论中的意义

李方(浙江大学)

刘绍学和Coelho于2000年引进了广义路代数的概念, 以期对代数的结构和表示进行更直接的刻画. 在随后的十几年, 广义路代数的方法获得了发展和应用. 本文是对这方面的一个总结和展示, 包括对广义路代数及其相关概念(如三角矩阵代数等)的结构和表示的介绍、用广义路(余)代数提出的对非基本(非点)Hopf代数的刻画的一个设想、广义路代数的变异以及一类广义路代数决定的丛代数的加法范畴化.

Modified Ringel-Hall algebras for hereditary exact categories

彭联刚(四川大学)

For any hereditary exact category, we define the modified Ringel-Hall algebra of period complexes and give a nice basis. This is a joint work with Ji Lin.

Milnor群和同余数问题

秦厚荣(南京大学)

代数整数环的Milnor群有着重要的数论意义。结合我们最近得到的同余数的一个新判别法则, 我们将建立Milnor群与同余数之间的联系。根据得到的结果, 我们将提出相关猜想。

Affine Brauer category and its cyclotomic quotients

芮和兵(同济大学)

I will talk about affine Brauer categories and level m Brauer categories. This is a joint work with Linliang Song.

Mixed Cohomology of Lie Superalgebras

苏育才(同济大学)

Supermanifolds are known to admit both differential forms and integral forms, thus any appropriate super analogue of the de Rham theory should take both types of forms into account. However, the cohomology of Lie superalgebras studied so far in the literature involves only differential forms when interpreted as a de Rham theory for Lie supergroups. Thus a new cohomology theory of Lie superalgebras is needed to fully incorporate differential-integral forms, and we investigate such a theory here. This new cohomology is defined by a BRST complex of Lie superalgebra modules, and includes the standard Lie superalgebra cohomology as a special case. General properties expected of a cohomology theory are established for the new cohomology, and examples of the new cohomology groups are computed. This is a joint work with R.B. Zhang.

Wakamatsu-silting complexes

魏加群(南京师范大学)

We introduce Wakamatsu-silting complexes (resp., Wakamatsu-tilting complexes) as a common generalization of both silting complexes (resp., tilting complexes) and Wakamatsu-tilting modules. Characterizations of Wakamatsu-silting complexes are given. In particular, we show that a complex T is Wakamatsu-silting if and only if its dual DT is Wakamatsu-silting. It is conjectured that compact Wakamatsu-silting complexes are just silting complexes. We prove that the conjecture lies under the finitistic dimension conjecture.

Skew Calabi-Yau Algebras and Poisson Algebras

吴泉水(复旦大学)

We will explore the relation between Nakayama Automorphisms of skew Calabi-Yau algebras and modular derivations of Poisson algebras under some framework of deformation quantizations.

G -偏序集、 G -等变函子与群表示

徐斐(汕头大学)

群作用是数学中常见的工具和方法，贯穿于群表示、群上同调等许多理论。设 R 为带单位元的交换环， G 为群。带有平凡 G -作用的单点集 S 承载了所有群表示（等同于从 C 到 $\text{mod-}R$ 的所有 G -等变函子）。一般地，如果 S 是 G -作用的某个轨道，那么相应的 G -等变函子恰为稳定子群 H 的所有表示，而轨道的同调群引出熟悉的诱导函子： $\text{mod-}RH \rightarrow \text{mod-}RG$ 。我们常常需要考虑 G 在更加复杂的几何对象上的作用。这些作用有时可以代数化，如李型群在 Tits building 和 Deligne-Lusztig 簇上的作用，能转化为在特定偏序集或

小范畴上的作用。本报告将假设 G 是有限群， P 是一个带有 G -作用的有限偏序集，讨论其上的 G -等变函子。偏序集 P 自然给出有限 RG -模复形，其同调群合成广义诱导函子，提供群表示信息。除了经典的诱导之外，Harish-Chandra诱导也成为前述广义诱导函子的特例。我们将看到，在合理条件下，所有群表示可以通过此函子得到。如果时间允许，我们将进一步探讨 G -等变函子与群表示的关联。

Exceptional cycles in triangulated categories

章璞(上海交通大学)

Exceptional cycles in a Hom-finite triangulated category with Serre functor have been recently introduced by N. Broomhead, D. Pauksztello, D. Ploog. This notion is a generalization of a spherical object, and also could be taken as the analogue of an exceptional sequence in the representation category of an acyclic quiver. It provides a new invariant of triangle-equivalences. Its importance also lies in the fact that it can be used to construct the twisted auto-equivalences of the given triangulated category. Thus, a fundamental task is to classify all the exceptional cycles. In this talk, we will first recall the basic properties of exceptional cycles; and then we will determine the exceptional cycles in two kind of triangulated categories, namely, the bounded derived category of an acyclic quiver, and the bounded homotopy category of perfect complexes over a gentle algebra. This is a joint work with Peng Guo (郭鹏).