东南大学 110 周年校庆学术系列活动

代数学专题研讨会

会议指南

会议日程

报告摘要

东南大学数学系承办

中国 • 南京

2012 年 **5** 月 **4** 日— **6** 日

会议日程

5 月 5 日，星期六 （报告地点：逸夫科技馆第一会议厅）

时间	主持人	报告人：报告题目
07:00--08:00	早　餐 （榴园宾馆）	
08:30--09:15	开幕式（逸夫科技馆第一会议厅）、照相 （大礼堂前）	
09:15--10:00	陈建龙	**席南华**：Coxeter 群的 Lusztig *a*-函数
10:05--10:20		茶　休
10:20--11:05		**张继平**：Block theory and fusion systems
11:10--11:55		**惠昌常**：Derived equivalences and cohomological approximations
12:10--01:50	午　餐 （榴园宾馆）	
02:00--02:45	秦厚荣	**张英伯**：Matrix bi-module problems
02:50--03:35		**章　璞**：单态射范畴与 Gorenstein 投射模
03:40--03:55		茶　休
03:55--04:40		**刘仲奎**：Transfer of Gorenstein dimensions of unbounded complexes along ring homomorphisms
04:45--05:30		**丁南庆**：On stability of Gorenstein categories
06:00--08:00	招待晚宴 （榴园宾馆）	

5 月 6 日，星期日 （报告地点：逸夫科技馆第一会议厅）

时间	主持人	报告人：报告题目
07:00--08:00	早 餐 （榴园宾馆）	
08:30--09:15	丁南庆	**游 宏**：Localization, subnormal structure of classical groups
09:20--10:05		**秦厚荣**：CM 椭圆曲线和二次多项式表素数
10:10--10:25		茶 休
10:25--11:10		**唐国平**：群环的代数 K 理论
11:15--12:00		**李 方**：Characterization for a non-planar qui--ver to be a cluster quiver from an oriented surface
12:10--01:50	午 餐 （榴园宾馆）	
02:00--02:45	李 方	**谭绍滨**：Integrable representations of extended affine Lie algebras
02:50--03:35		**芮和兵**：Finite dimensional irreducible modules for affine BMW algebras
03:40--03:55		茶 休
03:55--04:40		**吴泉水**：TBA
04:45--05:30		
06:00--08:00	晚 宴 （夫子庙）	

5 月 7 日，星期一 参会专家离会

报告摘要

Coxeter群的Lusztig a-函数

席南华
中国科学院数学与系统科学研究院

Coxeter群的Lusztig a-函数是研究Coxeter群的胞腔的有效工具。本报告关注的问题是：这个a-函数有界否？我们证明对一大类特殊的Coxeter群，这个a-函数有界。a-函数的有界性有一些有意思的推论。

Block theory and fusion systems

张继平
北京大学数学科学学院

We apply the fusion system theory to study and roughly determine the finite Group G such that $\mathrm{Aut}(G)$ acts with at most two orbits on the set of defect groups of all p-blocks of G.

Derived equivalences and cohomological approximations

惠昌常
首都师范大学数学科学学院

In this talk, we shall present a general method to construct derived equivalences from triangles with cohomological properties in triangulated categories. This method is applicable to the module categories of rings, Frobenius categories and Calabi-Yau categories.
This is a joint work with W. Hu and S. Koenig.

Matrix bi-module problems

张英伯
北京师范大学数学科学学院

In the present talk, we will introduce the notion of bi-module problems and the dual notion of bi-co-module problems. In particular, we introduce the matrix bi-module problems, which are closely related to the representation theory of finite-dimensional algebras.

单态射范畴与Gorenstein 投射模

章　璞
上海交通大学数学系

我们将回顾Gorenstein投射模和单态射范畴中的若干重要结果、它们之间的联系、以及它们在诸如奇点理论中的应用。特别地，介绍最近的Buchweitz-Happel-Bergh-Jorgensen-Oppermann-朱定理；并报告我们最近利用单态射范畴构造Gorenstein投射模的工作。

Transfer of Gorenstein dimensions of unbounded complexes along ring homomorphisms

刘仲奎
西北师范大学数学与信息科学学院

Let $R \longrightarrow S$ be a ring homomorphism. We consider the relationships of the Gorenstein dimensions of an R-complex X (possibly unbounded) with those of the S-complexes $\mathbf{R}\mathrm{Hom}_R(S, X)$ and $S \otimes^{\mathbf{L}}_R X$. More generally the Gorenstein injective dimension of $\mathbf{R}\mathrm{Hom}_R(U, X)$ is considered where U is an S-complex with finite projective dimension. As an application it is shown that if R is a local noetherian ring then a complex X of R-modules has finite Gorenstein

projective dimension if and only if it has finite Gorenstein flat dimension if and only if $\widehat{R} \otimes^{\mathbf{L}}_{R} X$ belongs to the Auslander category $\widehat{\mathcal{A}}(\widehat{R})$. This gives a resolution-free characterizations of complexes for which their Gorenstein projective dimensions are finite.

On stability of Gorenstein categories

丁南庆
南京大学数学系

We show that an iteration of the procedure used to define the Gorenstein projective modules over a ring R yields exactly the Gorenstein projective modules. Specifically, given an exact sequence of Gorenstein projective left R-modules $\mathbf{G} = \cdots \to G_1 \to G_0 \to G^0 \to G^1 \to \cdots$ such that the complex $\mathrm{Hom}_R(\mathbf{G}, H)$ is exact for each projective left R-module H, the module $\mathrm{Im}(G_0 \to G^0)$ is Gorenstein projective. We also get similar results for Gorenstein flat left R-modules when R is a right coherent ring. As applications, we obtain the corresponding results for Gorenstein complexes.
This talk is a report on joint work with Aimin Xu.

Localization, subnormal structure of classical groups

游　宏
苏州大学数学科学学院

Let $(R,\ \Lambda)$ be a commutative form ring, and let $(J,\ \Lambda)$ be a form ideal of $(R,\ \Lambda)$. Using principal localization and maximal localization staggered and some new results on localization-completion method in the past twenty years, we obtain a complete description of all subgroups of the generalized unitary group $U_{2n}(R,\ \Lambda)$ which are normalized by relative elementary subgroup $EU_{2n}(J,\ \Lambda)$ for all $n \geq 4$.

CM椭圆曲线和二次多项式表素数

秦厚荣
南京大学数学系

一元二次多项式表素数是非常困难的数学问题，目前还没有一个一元二次多项式表素数被证明可以表无穷多个素数。我们将讨论CM椭圆曲线的局部性质和二次多项式表素数的关系。

群环的代数K理论

唐国平
中国科学院研究生院数学科学学院

我们首先介绍有限域上有限交换群的群代数的K_2 群的确切结构。最近我们不仅给出了有限域上有限交换群的群代数的K_2 群结构，而且也给出了它们做为有限交换群的一组基底。利用这种结构结果，我们得到了有限群的整群环的K_2群的一些性质。同时我们也要介绍一些有限群的整群环的K-理论的一些其它性质，例如有限群的整群环的NK-群的非平凡性。

Characterization for a non-planar quiver to be a cluster quiver from an oriented surface

李　方
浙江大学数学系

The aim of this talk is to give an analogue of Kuratowski's theorem for cluster quivers from triangulations of oriented surfaces, which gives the characterization for a non-planar quiver to be a cluster quiver from an oriented surface. Using it, one can distinguish when anon-planar cluster quiver is of finite mutation type, etc.
This is a joint work with Jichun Liu and Yichao Yang.

Integrable representations of extended affine Lie algebras

谭绍滨
厦门大学数学科学学院

Extended affine Lie algebras are a class of important Lie algebras, which includes the finite dimensional simple Lie algebras and affine Kac-Moody algebras as special examples. In this talk we are going to deal with the realizations and classifications of integrable irreducible representations for certain extended affine Lie algebras.

Finite dimensional irreducible modules for affine BMW algebras

芮和兵
华东师范大学数学系

In this talk, I will explain how to classify the finite dimensional irreducible modules of affine BMW algebra over an algebraically closed field in characteristic zero in generic case.