

## 题目和摘要

毕艳会 (南昌航空大学)

题目: Higher nonabelian omni-Lie algebroids

摘要: In this talk, the structure of higher nonabelian omni-Lie algebroid is studied. The concept of higher nonabelian omni-Lie algebroids on direct sum bundle  $\mathfrak{D}E \oplus \wedge^n \mathfrak{J}E$  is introduced, and its related properties are given. It is concluded that the Pre-Dirac structures of higher nonabelian omni-Lie algebroid and  $n$ -Lie algebroid have a one-to-one correspondence. By analyzing the matched pair of Leibniz algebroids, it is concluded that higher nonabelian omni-Lie algebroid  $\mathfrak{D}E \oplus \wedge^n \mathfrak{J}E$  can be regarded as a matched pair of two Leibniz algebroids  $\mathfrak{D}E$  and  $\wedge^n \mathfrak{J}E$ . From the geometric point of view, higher nonabelian omni-Lie algebroid can be regarded as Weinstein linearization of higher analogue of Courant algebroid associated to Nambu-Poisson manifolds.

陈酌 (清华大学)

题目: Drinfeld modules and Drinfeld modular curves

摘要: The theory of Drinfeld modules is one of the most important developments in mathematics during the last fifty years. In 1970's, Vladimir Gershonovich Drinfeld introduced the notion of elliptic modules which are now known as Drinfeld modules, and its theory is a relatively new area of research in function field arithmetic. Roughly speaking, Drinfeld modules are the function field analogue of elliptic curves. Drinfeld transports the modular theory of elliptic curves to the function field case. One of the most outstanding contributions made by Drinfeld is the proof of the global Langlands' correspondence for  $\mathrm{GL}_2$  and function fields in the special case of dimension 2. Along the lines of the strategy that Drinfeld developed in his articles, Laurent Lafforgue proved in 2000 Langlands' correspondence for function fields in every dimension. In

2000, based on his procedure for constructing explicit towers of modular curves, Elkies deduced explicit equations of rank-2 Drinfeld modular curves which coincide with the asymptotically optimal towers of curves constructed by Garcia and Stichtenoth. In 2015, Bassa, Beelen, Garcia, and Stichtenoth constructed a celebrated (recursive and good) tower (BBGS-tower for short) of curves and outlined a modular interpretation of the defining equations. Soon after that, Gekeler studied in depth the modular curves coming from sparse Drinfeld modules. In this work, to establish a link between these existing results, we propose and prove a generalized Elkies' Theorem which tells in detail how to directly describe a modular interpretation of the equations of rank- $m$  Drinfeld modular curves with  $m \geq 2$ . We also come up with a sequence of Drinfeld modular curves which are organized in an elegant manner—a hierarchical topology tree which we call the  $N$ -torsion tree.

程家豪 (南昌航空大学)

题目: Hopf algebras arising from dg manifolds

摘要: Let  $(M, Q)$  be a dg manifold. The space of shifted vector fields  $(X(M)[-1], L_Q)$  is a Lie algebra object in the homology category  $H(\text{dg-mod})$  of dg modules over  $(M, Q)$ , the Atiyah class  $\alpha_M$  being its Lie bracket. The triple  $(X(M)[-1], L_Q; \alpha_M)$  is also a Lie algebra object in the Gabriel-Zisman homotopy category  $\Pi(\text{dg-mod})$ . In this talk, we describe the universal enveloping algebra of  $(X(M)[-1], L_Q; \alpha_M)$  and prove that it is a Hopf algebra object in  $\Pi(\text{dg-mod})$ . As an application, we study Fedosov dg Lie algebroids and recover a result of Chen, Stiénon and Xu on the Hopf algebra arising from a Lie pair. This is a joint work with Zhuo Chen and Dadi Ni.

洪伟 (武汉大学)

**题目:** Poisson structure, polyvector vector fields and toric varieties

**摘要:** In this talk, we give a report on my work of holomorphic polyvector fields on toric varieties and Poisson cohomology. The vector space of holomorphic polyvector fields on a toric variety has a natural Gerstenhaber algebra structure. In this talk, we give a necessary and sufficient condition for the existence of BV operators on this Gerstenhaber algebra.

姜恺 (北京化工大学)

**题目:** Singular symplectic structures and their local normal forms

**摘要:** In this talk, I will talk about the normal form theory in different aspects, first in dynamical systems and then in differential geometry. I will introduce some classical types of singular symplectic structures and then focus on two special ones and provide their normal forms. We will also discuss closely related subjects such as singular Poisson structures and useful tools used in dynamical systems. Main part of this talk is based on a joint work with T. Ratiu and N. T. Zung.

李彦鹏 (四川大学)

**题目:** String cone via Poisson geometry

**摘要:** In this talk, I will construct the string cone, which gives a parametrization of canonical basis of quantum universal algebras, via the integral affine structure of the tropicalization of Poisson-Lie groups.

生云鹤 (吉林大学)

**题目:** Factorizable Lie bialgebras and quadratic Rota-Baxter Lie algebras

**摘要:** In this talk, we show that there is a one-to-one correspondence between factorizable Lie bialgebras and quadratic Rota-Baxter Lie algebras of nonzero

weight. If there is enough time, we will also talk about Rota-Baxter Lie bialgebras.

唐荣（吉林大学）

**题目：** The controlling  $L_\infty$ -algebra, cohomology and homotopy of embedding tensors and Lie-Leibniz triples

**摘要：** In this talk, we first construct the controlling algebras of embedding tensors and Lie-Leibniz triples, which turn out to be a graded Lie algebra and an  $L_\infty$ -algebra respectively. Then we introduce representations and cohomologies of embedding tensors and Lie-Leibniz triples, and show that there is a long exact sequence connecting various cohomologies. As applications, we classify infinitesimal deformations and central extensions using the second cohomology groups. Finally, we introduce the notion of a homotopy embedding tensor which will induce a  $\text{Leibniz}_\infty$ -algebra. We realize Kotov and Strobl's construction of an  $L_\infty$ -algebra from an embedding tensor, to a functor from the category of homotopy embedding tensors to that of  $\text{Leibniz}_\infty$ -algebras, and a functor further to that of  $L_\infty$ -algebras.

向茂松（华中科技大学）

**题目：** Atiyah and Todd classes of regular Lie algebroids

**摘要：** For any regular Lie algebroid  $A$ , the kernel  $K$  and the image  $F$  of its anchor map  $\rho$ , together with  $A$  itself fit into a short exact sequence, called Atiyah sequence, of Lie algebroids. In this talk, we discuss about Atiyah and Todd classes of dg manifolds arising from regular Lie algebroids, and we will see that the constructions of these cohomology classes is indeed functorial in the sense that they respect the Atiyah sequence. If time permitted, we will discuss how they are related to quantizations.

谢远成（北京大学）

**题目：** Rational solutions of the full Kostant-Toda lattice of type  $B$

**摘要：** In 1967, Japanese physicist Morikazu Toda proposed an integrable lattice model to describe motions of a chain of particles with exponential interactions between nearest neighbors. Since then, Toda lattice becomes the test ground for various techniques and philosophies in integrable systems and they have been analyzed from the perspectives of analysis, geometry, combinatorics, representation theory etc.

The full Kostant-Toda lattice is a natural generalization of the original tridiagonal Toda lattice. In this talk, I will show you how to construct rational solutions of the full Kostant-Toda lattice of type  $B$  in terms of the Schur polynomials and the  $Q$ -Schur polynomials. This talk is based on joint work with Yuji Kodama.

徐晓濛（北京大学）

**题目：** A remark on a class of time dependent Hamiltonian equations

**摘要：** In this talk, we give an introduction to a class of multitime dependent Hamiltonian equations, the so called isomonodromy deformation equations. We discuss some new developments and conjectures on these equations.

于世卓（南开大学）

**题目：** Kogan-Zelevinsky integrable systems and related integrable systems associated to generalized Bruhat cells

**摘要：** Kogan-Zelevinsky integrable systems are a class of very rare completely holomorphic integrable systems associated to complex semisimple Lie groups. In this talk, we will introduce their construction and related integrable systems

associated to generalized Bruhat cells.

张涛 (河南师范大学)

**题目:** Extending structures for 3-Lie algebras

**摘要:** In this talk, we will review the extending structures for Lie algebras. Then we will investigate the theory of extending structures and unified products for 3-Lie algebras. It will be proved that the extending problem of 3-Lie algebras can be classified by using some non-abelian cohomology and deformation map theory.