A MEETING OF NICHOLS ALGEBRAS AND COLOR LIE BIALGEBRAS

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Abstract:
Nichols algebras are fundamental building blocks of pointed Hopf algebras. They are attached uniquely to Yetter-Drinfeld modules over Hopf algebras with bijective antipode. Assume that the latter Hopf algebra is the group algebra of an abelian group. Then the structure of Nichols algebras of semisimple Yetter-Drinfeld modules is governed by the combinatorics of generalized root systems and is reasonably well understood. In the non-semisimple case some classification results for finite GK-dimensional Nichols algebras have been obtained in a joint work with Andruskiewitsch and Angiono. The simplest examples are the Jordanian and super Jordanian plane and different Laistrygonian spaces, which will be explained in detail in the talk. Then I will introduce the notion of a shaded color vector space and the associated color Lie bialgebra, and discuss how the above Nichols algebras can be viewed as universal enveloping algebras of finite dimensional color Lie bialgebras.