



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

COLLOQUIUM

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"Quantum Deformations, old and new"

Abstract:

There are two traditional sources of quantum algebras. One is provided by non-commutative deformations of (commutative) algebras of functions on a Lie group or more generally on a suitable manifold (or algebraic variety), together with its natural Poisson structure. The other ("dual") is provided by "quantizing" already non-commutative objects, namely universal enveloping algebras of simple finite dimensional Lie algebras (or their generalizations known as Kac-Moody Lie algebras). One important property of these deformations is their "flatness": the deformation parameter can be specialized and the resulting objects share many properties. In particular, quantum algebras admit very remarkable bases (called Lusztig's canonical bases) which are preserved by natural symmetries and are compatible with specialization. In the present talk, I will review these notions and discuss some new quantum deformations discovered when we attempted to understand Lusztig's geometric construction of canonical bases for non-simply laced Lie algebras from the algebraic point of view (joint work with A. Berenstein).

Wednesday, October 27th, 2010

Surge 284

4:10-5:00pm

Tea Time at 3:40pm