ADRIAN OCNEANU, The Pennsylvania State University, University Park, Pennsylvania 16802, USA
Quantum subgroups, lattices and canonical bases of Lie groups

We show that from a quantum subgroup of SU(2), or the corresponding subfactor, one can construct in a canonical manner the quantum simple Lie group with the same Coxeter graph. The construction yields in a simple and elementary way the roots, weights, the quantum universal enveloping algebra with a canonical basis and the irreducible representations of the quantum Lie group. The basis, which is shown to be as canonical as possible, does not depend on a choice of a simple basis for the Lie group.

From the quantum subgroups of other simple Lie groups we construct new finite dimensional Euclidean unimodular lattices of weights and roots. Even in the simplest cases, these lattices appear to be new.

We provide the classification of the quantum subgroups of SU(2), SU(3) and SU(4). While the number of exceptional usual subgroups grows rapidly, the number of exceptional quantum subgroups is small: 2 for SU(2), 3 for SU(3) and 3 for SU(4).