Meeting: 1003, Atlanta, Georgia, SS 23A, AMS Special Session on Representations of Lie Algebras, I

1003-81-1075 **Vyjayanthi Chari** and **Adriano Adrega de Moura*** (adrianoam@math.ucr.edu), University of California, Riverside, Mathematics Department, Riverside, CA 92521. *L-Weight and L-Root Lattices for Classical and Quantum Affine Algebras.*

We introduce the notion of the l-weight lattice and the l-root lattice for classical and quantum affine algebras, which are appropriate to study two kinds of characters associated to finite-dimensional representations of classical and quantum affine algebras: the q-character (or l-character) and the elliptic character. More precisely, we show that the associate Braid Group action on the l-weight lattice preserves the l-root lattice. Then we show that, for algebras of classical type, the l-characters of fundamental representations have a certain inavariance under the corresponding Braid Group action. As corollaries we obtain some explicity formulas for l-characters in terms of the Braid Group action and one of the main results of the original q-characters papers, namely, the l-weights of irreducible representations lie in a certain cone. Finally, we give generators and relations for the quotient of the l-weight lattice by the l-root lattice and prove that the blocks of the category of finite-dimensional representations of classical and quantum affine algebras are parametrized by elements of this quotient. These elements are called the elliptic characters (or spectral characters in the classical case) of the representations in the corresponding block. (Received October 03, 2004)