

Colloquium

BERNARD LECLERC
Université de Caen, France

KIRILLOV-RESHETIKHIN MODULES AND THEIR q -CHARACTERS

Monday, November 3, 2014
10:25–11:25 in **ES-139**

ABSTRACT. Kirillov-Reshetikhin modules are a class of irreducible finite-dimensional representations of quantum affine algebras (or Yangians). Initially introduced in mathematical physics in relation with certain integrable models, they appear as the most “accessible” irreducible representations. I will explain recent new methods to describe their q -characters: (1) an algorithmic method which allows to calculate them by successive approximations; (2) a geometric method which expresses them in terms of Euler characteristics of Grassmannians of submodules for a quiver with potential. Both methods come from the interpretation of the q -characters of Kirillov-Reshetikhin modules as cluster variables in the Grothendieck ring. They work in a uniform way for all untwisted quantum affine algebras. This is joint work with David Hernandez ([arXiv:1303.0744](https://arxiv.org/abs/1303.0744)).