Physics Seminar: Nathan Haouzi Wednesday, March 27 · 2:00 – 3:00pm

Location: 313

Title: Massive deformations of superconformal field theories from quantum groups

Abstract: A large family of four-dimensional N=2 superconformal field theories (SCFTs) known as class S was constructed by Gaiotto as a (twisted) compactification of six-dimensional N=(2,0) SCFTs on a punctured Riemann surface. Meanwhile, the Alday-Gaiotto-Tachikawa correspondence conjectures a partial dictionary between massive deformations of these class S theories and certain (sometimes degenerate) primary vertex operators in two-dimensional Toda CFTs on the Riemann surface. In this talk, I will motivate that a complete dictionary does exist in general, and describe it explicitly; remarkably, I will argue that its existence follows from the representation theory of quantum affine algebras. No previous knowledge of quantum groups, class S theories or Toda CFTs will be assumed.