Queen's Algebraic Geometry
— Seminar —

Quiver representations in the super-category

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Abstract

Briefly, a quiver is an oriented graph, and a representation of a quiver, is the choice of vector spaces at each vertex and linear maps corresponding to each edge. Gabriel's Theorem establishes a combinatorial connection between quiver representations and Lie Theory. Studying representations of quivers has also allowed for geometric constructions of bases for representations of Lie algebras, called crystal bases. For the Lie super-algebra $gl(m, n)$, crystal bases have been shown to exist by Benkart, Kang and Kashiwara. Currently, we are interested in attempting to use representations of quivers in the super-category to obtain a geometric construction of the crystal bases for $gl(m, n)$ similar to the classical constructions.

In this talk, after reviewing the classical picture, we will define the category of super-representations of a quiver and explain how, in the case of quivers of type $A(m, n)$, Gabriel's Theorem extends. We will also describe the representation varieties in the super-category, which should serve as the starting point for any future geometric constructions.

Monday 4 October 2010
16:30 – 17:30
319 Jeffery Hall