February 26, 2014: Ivan Loseu (Northeastern), *Multiplicities in the category $O$ for $\mathfrak{gl}(m|n)$*

The talk is based on [http://arxiv.org/abs/1310.0349](http://arxiv.org/abs/1310.0349), which is joint work with Brundan and Webster. We reprove Brundan’s conjecture on the multiplicities (of simples in Verma) for the category $O$ of the Lie superalgebra $\mathfrak{gl}(m|n)$. The first proof was by Cheng, Lam and Wang in [http://arxiv.org/abs/1203.0092](http://arxiv.org/abs/1203.0092). Our approach is based on the uniqueness theorem for tensor products of categorical Kac-Moody actions due to myself and Webster, [http://arxiv.org/abs/1303.1336](http://arxiv.org/abs/1303.1336), and compares the multiplicities in the $\mathfrak{gl}(m|n)$ category $O$ with those in a parabolic category $O$ for a suitable $\mathfrak{gl}$. Time permitting I will also briefly explain why the category $O$ for $\mathfrak{gl}(m|n)$ is Koszul, which is a new result in 1310.0349.