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

The talk is based on `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 Vermas) for the category $\mathcal{O}$ of the Lie superalgebra $\mathfrak{gl}(m|n)$. The first proof was by Cheng, Lam and Wang in `http://arxiv.org/abs/1203.0092`. 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`, and compares the multiplicities in the $\mathfrak{gl}(m|n)$ category $\mathcal{O}$ with those in a parabolic category $\mathcal{O}$ for a suitable $\mathfrak{gl}$. Time permitting I will also briefly explain why the category $\mathcal{O}$ for $\mathfrak{gl}(m|n)$ is Koszul, which is a new result in `1310.0349`.