February 12, 2014: Pavel Etingof (MIT), *Tensors of rank* π.

Let t be a complex number, and V a complex vector space. I will explain how to define the tensor power $V^{\otimes t}$. This can be done canonically if we fix a nonzero vector in V. However, the result is not a vector space but rather an (ind-)object in the tensor category $\mathrm{Rep}(S_t)$, defined by P. Deligne as an interpolation of the representation category of the symmetric group S_n to complex values of n. This category is semisimple abelian for $t \notin \mathbf{Z}_+$, but only Karoubian (=idempotent complete) for $t \in \mathbf{Z}_+$, in which case it projects onto the usual representation category of S_n. I will define the category $\mathrm{Rep}(S_t)$, and explain how Schur-Weyl duality works in this category when $t \notin \mathbf{Z}_+$. If time permits, I will explain what happens at integer t, which is more subtle and is due to Inna Entova-Aizenbud.