

November 21, 2012: The talk will be focused on the category of modules for current Lie algebras $g \otimes \mathbb{C}[t]$ which are integrable with respect to the action of the semisimple subalgebra $g \otimes 1$. This category has many analogues with the usual category \mathcal{O} for semisimple Lie algebras. In particular, the analogues of Verma modules are known under the name Weyl modules after Chari-Pressley and their characters are given via Macdonald polynomials with $t = 0$ at least in the simply laced case. We show that the analogue of BGG duality holds at least for $g = gl_n$ and gives the representation-theoretic explanation of the Cauchy identity for Macdonald polynomials for this particular specialization $t = 0$.