

Duality in Category \mathcal{O}^∞ and Locally Analytic Representations

A representation of a p -adic reductive group G leads to a representation of the associated Lie algebra $\mathfrak{g} = \text{Lie}(G)$. In the other direction, going from \mathfrak{g} -modules to representations, S. Orlik and M. Strauch have exhibited a functor \mathcal{F} from the BGG category \mathcal{O} to the category of locally analytic representations, which was later generalized to the extension closure \mathcal{O}^∞ . The derived category of category \mathcal{O}^∞ carries an Ext-duality functor $\mathbb{D}^{\mathfrak{g}}$. On the other hand, P. Schneider and J. Teitelbaum have defined and studied a duality functor \mathbb{D}^G for locally analytic representations of G . The main result of this talk explains how, under certain technical assumptions, the functor \mathcal{F} interacts with the duality functors $\mathbb{D}^{\mathfrak{g}}$ and \mathbb{D}^G .