Hiroshi Yamashita (Hokkaido University)

“Isotropy representations for singular unitary highest weight modules”

**Abstract:** We describe the isotropy representation $W_\lambda$ attached to every singular unitary highest weight module $L(\lambda)$. In the oscillator setting, it has been already shown that the assignment $W_\lambda^* \rightarrow L(\lambda)$ essentially gives the Howe duality correspondence with respect to a compact dual pair. In this talk, we focus our attention on $L(\lambda)$’s which cannot be realized by the theta correspondence. By using the projection onto the PRV-component, the isotropy representations are explicitly determined for such highest weight modules. This gives in particular a clear understanding of the multiplicity formulae obtained by Kato and Ochiai for the cases BI, DI and EVII. Moreover, it turns out that the representation $W_\lambda$ is irreducible for every singular unitary highest weight module. This is a joint work with Akihito Wachi of Hokkaido Institute of Technology.