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"Isotropy representations for singular unitary highest weight modules"

`Abstract:` We describe the isotropy representation $\mathcal{W}_\lambda$ attached to every singular unitary highest weight module $L(\lambda)$. In the oscillator setting, it has been already shown that the assignment $\mathcal{W}_\lambda^* \leftrightarrow L(\lambda)$ 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 can not 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 $\mathcal{W}_\lambda$ is irreducible for every singular unitary highest weight module. This is a joint work with Akihito Wachi of Hokkaido Institute of Technology.