

GEOMETRIC ANALYSIS ON SYMPLECTIC SPACES AND SYMMETRY BREAKING OPERATORS

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Abstract:

We consider Howe correspondence for dual pairs with one member compact. Given an irreducible representation Π of the compact member, we study the projection operator P_Π of the Weil representation onto its Π -isotopic component. These operators are examples of symmetry breaking operators in the sense of Kobayashi. Guided by Hermann Weyl's integration formula, we study orbital integrals on the underlying symplectic space. They are needed to compute the Weyl symbols of P_Π .

Our main example will be the dual pair of two compact unitary groups. In this case, we recover by purely analytic methods the existence of Howe correspondence for compact unitary groups, or equivalently, Weyl's First Fundamental Theorem for Classical Invariant Theory for complex general linear groups.

This is joint work with Mark McKee and Tomasz Przebinda (University of Oklahoma).