BESOV SPACES AND THE BOUNDEDNESS OF WEIGHTED BERGMAN PROJECTIONS OVER SYMMETRIC TUBE DOMAINS

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Abstract

We extend the analysis of weighted Bergman spaces $A^{p,q}_s$ on symmetric tube domains, contained in [2], to the case where the weights are positive powers $\Delta_s = \Delta_1^{s_1} \cdot \cdots \cdot \Delta_r^{s_r}$ of the principal minors $\Delta_1, \ldots, \Delta_r$ on the symmetric cone $\Omega$. We discuss the realization of the boundary distributions of functions in $A^{p,q}_s$ in terms of Besov-type spaces $B^{p,q}_s$ adapted to the structure of the cone. We give a necessary and a sufficient condition on the values of $p$, $q$ and $s$ for which this identification between $A^{p,q}_s$ and $B^{p,q}_s$ holds. We also present a continuous version of these latter spaces which is new even for the case $s_1 = \cdots = s_r$ considered in [2]. We use these results to discuss multipliers between Besov spaces and the boundedness of the weighted Bergman projection $P_s: L^{p,q}_s \rightarrow A^{p,q}_s$. The situation in the rank two case is specifically dealt with.

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