

A Brief Comment About “Covariant Mehler Semigroups in Hilbert Space.”

In order to apply Schur’s lemma correctly in Corollary 3.1 we need to consider the complexification of H which we denote as $H_{\mathbb{C}}$. We extend the actions of Q and $S(t)$ to $H_{\mathbb{C}}$ by linearity and also extend $T(t)$ to $C_b(H_{\mathbb{C}})$ via (2.1). Finally in Corollary 2.1 we must insist that G acts irreducibly on $H_{\mathbb{C}}$.

The reason for this is that Schur’s lemma does not necessarily hold on real Hilbert spaces (see e.g. pp. 97-8 of J.Faraut “Analysis on Lie Groups”, Cambridge University Press (2008))

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