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Separation and Extension Properties of Positive Definite Functions on Locally Compact Groups

Let G be a locally compact group and $P(G)$ be the set of continuous positive definite functions on G , i.e., all continuous functions $\phi: G \rightarrow \mathbb{C}$ such that $\sum \lambda_i \bar{\lambda}_j \phi(x_i x_j^{-1}) \geq 0$ for any $\lambda_1, \dots, \lambda_n \in \mathbb{C}$ and $x_1, \dots, x_n \in G$. A closed subgroup H of G is called separating if for each $x \in G \setminus H$, there exists $\phi \in P(G)$ such that $\phi(x) \neq 1$, and $\phi(h) = 1$ for all $h \in H$; H is called extending if for each $\phi \in P(H)$ there exists $\tilde{\phi} \in P(G)$ such that $\tilde{\phi}$ extends ϕ . G is said to have the separation property (respectively extension property) if each closed subgroup H of G separating (respectively extending).

In this talk I shall discuss some recent results with Eberhard Kaniuth on the separation and the extension properties for locally compact groups and their subgroups.