

ON HERZ'S EXTENSION THEOREM

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Dedicated to the memory of Uffe Haagerup

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ABSTRACT. We present a self-contained proof of the following famous extension theorem due to Carl Herz. A closed subgroup H of a locally compact group G is a set of p -synthesis in G if and only if, for every $u \in A_p(H) \cap C_{00}(H)$ and for every $\varepsilon > 0$, there is $v \in A_p(G) \cap C_{00}(G)$, an extension of u , such that

$$\|v\|_{A_p(G)} < \|u\|_{A_p(H)} + \varepsilon.$$

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