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Trace Class Groups: the Case of Semi-Direct Products

A Lie group G is called a trace class group if for every irreducible unitary representation π of G and every C^∞ function f with compact support the operator $\pi(f)$ is of trace class. In this paper we extend the study of trace class groups, begun in a previous paper, to special families of semi-direct products. For the case of a semisimple Lie group G acting on its Lie algebra $\mathfrak{g}$ by means of the adjoint representation we obtain a nice criterion in order that $\mathfrak{g} \rtimes G$ is a trace class group.