

**GLOBAL ANALYTIC HYPOELLIPTICITY AND
SOLVABILITY OF CERTAIN OPERATORS SUBJECT
TO GROUP ACTIONS**

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ABSTRACT. On $T \times G$, where T is a compact real-analytic manifold and G is a compact Lie group, we consider differential operators P which are invariant by left translations on G and are elliptic in T . Under a mild technical condition, we prove that global hypoellipticity of P implies its global analytic-hypoellipticity (actually Gevrey of any order $s \geq 1$). We also study the connection between the latter property and the notion of global analytic (resp. Gevrey) solvability, but in a much more general setup.

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