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invariant Riemannian metric in a proper Lie group action

Let $\theta : G \curvearrowright M$ be a proper smooth Lie group action. Then there exists a θ -invariant Riemannian metric on M such that the image

$$\theta : G \rightarrow \operatorname{Isom}(M, g)$$

is closed.

The Riemannian metric in

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might not be complete.

Corollary: Let $G \curvearrowright M$ be a *faithful, proper* and smooth Lie group action. Then

$$\dim G \leq \frac{1}{2} \dim M (\dim M + 1)$$

Current note has 0 direct children and 0 total descendants.

- structures based on sets
 - manifolds
 - smooth $\mathbb{R}$ -manifold
 - Smooth Lie group action on a smooth manifold
 - invariant Riemannian metric in a proper Lie group action

And it has 5 siblings.

- structures based on sets
 - manifolds
 - smooth $\mathbb{R}$ -manifold
 - Smooth Lie group action on a smooth manifold
 - Smooth action by a compact Lie group
 - Generators of a Lie group action
 - Orbits of smooth Lie group actions
 - Proper Lie group actions
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