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### Invariant Lagrangians on Homogeneous Manifolds

Abstract: Let  $M = G/H$  be a homogeneous manifold, a Lagrangian  $L : TM \rightarrow \mathbb{R}$  is said to be *invariant* if for the canonical left action  $\Phi_g : M \rightarrow M$ ,  $g \in G$  of the homogeneous manifold,  $L \circ T\Phi_g = L$ ,  $g \in G$  holds. Since thus a natural generalization of the concept of homogeneous Riemannian manifolds is obtained, the extension of their classical theory to invariant Lagrangians is interesting and will be discussed in the lecture.