Info

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Left-invariant Lagrangian on a Lie group

- Lagrangian

> **Theorem 2.2** (Poincaré [18]). *Let $g\colon [0,1] \to G$ be a solution to the Euler–Lagrange equations for L, thus extremizing the action functional*
>
> $$A(g) = \int_0^1 L(g(t), \dot{g}(t))\mathrm{d}t.$$
>
> *Then the path $\xi\colon [0,1] \to \mathfrak{g}$ defined by (7) fulfills the* Euler–Poincaré equation
>
> $$\frac{\mathrm{d}}{\mathrm{d}t} D\ell(\xi) - \mathrm{ad}^*_\xi D\ell(\xi) = 0, \tag{8}$$
>
> *where ad^*_ξ is the co-adjoint infinitesimal action of ξ on $\mathfrak{g}^*$, defined by*
>
> $$\langle \mathrm{ad}^*_\xi \mu, \zeta \rangle = \langle \mu, [\xi, \zeta] \rangle, \qquad \forall \zeta \in \mathfrak{g}. \tag{9}$$

Current note has 0 direct children and 0 total descendants.

- structures based on sets
  - manifolds
    - $\mathbb{R}$-manifold group (Lie groups)
      - Left-invariant Lagrangian on a Lie group

And it has 18 siblings.

- structures based on sets
  - manifolds
    - $\mathbb{R}$-manifold group (Lie groups)
      - Adjoint representation of a Lie group
      - Conjugation action of a Lie group on itself
      - Classification of Lie groups
      - Compact Lie groups
      - Connected Lie groups with discrete center
      - Connected Lie groups with non-surjective exponential map
      - Discrete subgroups of Lie groups
      - Smooth maps onto a Lie group
      - Lie groups with surjective exponential map
      - Maurer-Cartan form
      - Left-invariant Lagrangian on a Lie group
      - Lie algebra of a lie group
      - Bi-invariant metrics on Lie groups
      - Left invariant Riemannian metric on a Lie group
      - Semi-simple $\mathbb{R}$-Lie groups
      - Almost simple groups
      - Virtual subgroups of Lie groups
      - Lie group with dilations