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was created on November 29, 2023 11:46:01 PM,
was last modified on May 17, 2026 7:36:50 PM, and
was exported on September 7, 2026 3:31:19 PM.

A lagrangian with a 2-form

Definition. A lagrangian with a 2-form

Let M be a semi-Riemannian manifold, $A \in \mathrm{Forms}^2(M)$ and $x : \mathbb{R} \to M$

$$\mathcal{A}(x) := -\int_{\mathbb{R}} \frac{m}{2} g(\dot{x}, \dot{x}) + qA(\dot{x})$$

$$\frac{\mathrm{d}}{\mathrm{d}s}\mathcal{A}(x_s) = -\int_{\mathbb{R}} mg(\delta_s x_s, \ddot{x}) + \mathrm{d}A(\delta_s x_s, q\dot{x})$$

$$\nabla_{\dot{x}} = \mathrm{d}A(q\dot{x}, -)^\sharp$$

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- structures based on sets
  - manifolds
    - $\mathbb{R}$-manifold semi-Riemannian
      - Vector fields on Riemannian manifolds
        - Lorentz flows from a 2-form
          - A lagrangian with a 2-form

And it has 2 siblings.

- structures based on sets
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    - $\mathbb{R}$-manifold semi-Riemannian
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        - Lorentz flows from a 2-form
          - Kaluza-Klein geodesic flow from Lorentz force flow
          - A lagrangian with a 2-form

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1. http://nicf.net/articles/classical-em/ ↩