An Introduction to String Theory

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Table of Contents

Introduction – Notation

- Metric:
  - $\eta_{\mu\nu} = \text{diag}(-1,+1, \ldots, +1)$

The Relativistic String – The Action

- Consider the action of a point particle (with fixed coordinates $X_\mu = (t, \vec{x})$ in a given frame):

$$S = -m \int dt \sqrt{1 - \dot{\vec{x}}\dot{\vec{x}}}$$

$\rightarrow$ not Lorentz-invariant, due to mixture of spacial and temporal coordinates under a Lorentz-transformation Λ.

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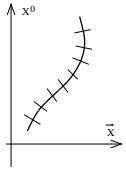

Figure: [1]

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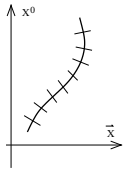

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Never forget the Titles!

- first item
  - subitem
    - subsubitem
- second item
  1. item 1
     1.1 subitem 1
     1.2 subitem 2
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- third item

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Covariant Quantization of the Solutions of the Nambu-Goto Action

$$S = \frac{1}{2\pi\alpha'} \int \sqrt{-\det g}\, \partial_\mu \tag{1}$$

Quantization of X^μ in the Lightcone Gauge

References

 David Tong. “Lectures on String Theory”. In: *arXiv:0908.0333 [hep-th]* (Feb. 2012). arXiv: 0908.0333. URL: http://arxiv.org/abs/0908.0333 (visited on 07/13/2020).