Taking String Theory to the Standard Model and Beyond

Esben Mølgaard

Niels Bohr Institute
University of Copenhagen

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Overview

String theory

Massless open string states

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NS-sector

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R-sector

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The effective dimension can be reduced through compactification.

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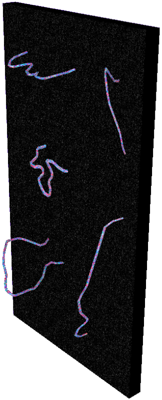

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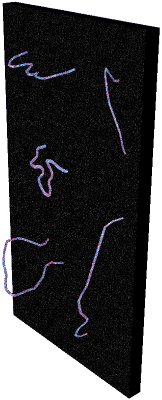

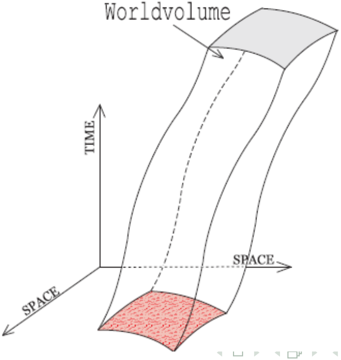

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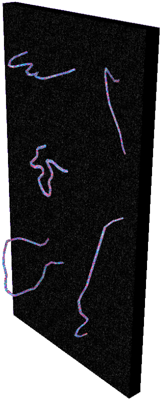
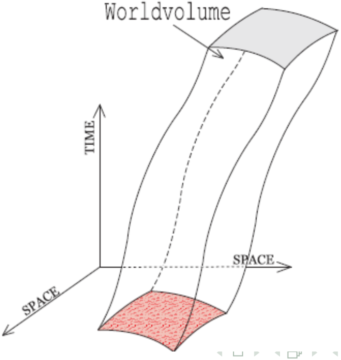
- Many possible configurations





Changes from magnetization

- Single string stretched between two D-branes that are magnetized in the 6 compact directions.

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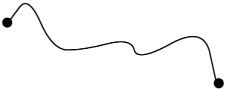
Supersymmetry is broken

Gauge groups in string theory



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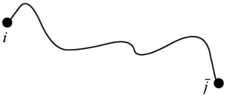

Chan-Paton indices give $U(N)$ symmetry

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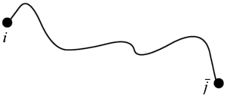

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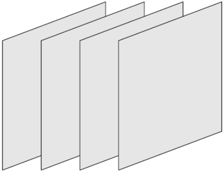

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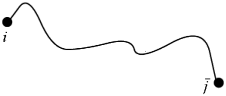

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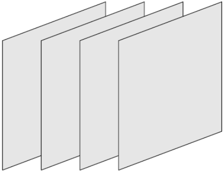

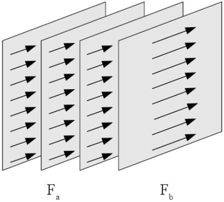

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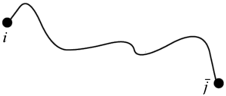

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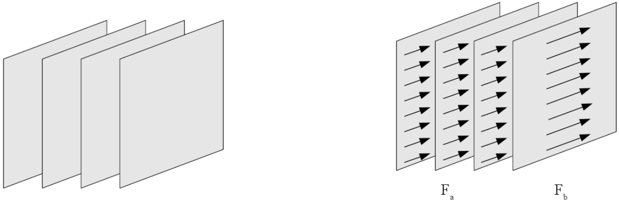

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R-strings transform in the bifundamental representation $(\mathbf{K}, \bar{\mathbf{L}})$.

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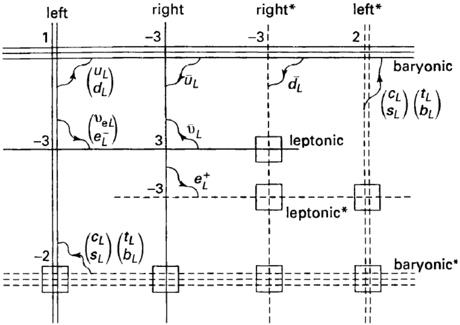
In the T-dual picture, these are intersection numbers,



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It is possible to extend the model to go even further beyond the Standard Model.