

High Energy Physics - Theory

Quantum 3D Superstrings

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The classical Green-Schwarz superstring action, with $N=1$ or $N=2$ spacetime supersymmetry, exists for spacetime dimensions $D=3,4,6,10$, but quantization in the light-cone gauge breaks Lorentz invariance unless either $D=10$, which leads to critical superstring theory, or $D=3$. We give details of results presented previously for the bosonic and $N=1$ closed 3D (super)strings and extend them to the $N=2$ 3D superstring. In all cases, the spectrum is parity-invariant and contains anyons of irrational spin.

Comments: 46 pages, v5 corrects more typos and minor errors

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