Gemeinsame Veranstaltung von
Humboldt-Universität zu Berlin, Institut für Physik
(Theorie der Elementarteilchen / Computerorientierte Theoretische Physik)
DESY, Zeuthen

SEMINAR
Feldtheorie auf dem Gitter und
Phänomenologie der Elementarteilchen

Am Montag, dem 19. April 2010, um 16:00 Uhr s.t. spricht

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zum Thema

**Closed SU(N) Flux Tubes as Bosonic Strings**

**Abstract**

We present our latest findings on the excitation spectrum of the closed flux tube in
D=2+1 and D=3+1 SU(N) gauge theories with the flux in the fundamental representa-
tion of colour. In D=2+1 the states are described by the quantum numbers of parity
and longitudinal momentum and in D=3+1 there is the additional quantum number
of spin. For both dimensions we are able to obtain quite accurate results for a large
number (O(10)) of states. In D=2+1 most of the low-lying states are described by the
spectrum of Nambu-Goto bosonic string in flat space-time, while some other states
show small deviations that vanish quickly with the flux tube length. In D=3+1 we
find that most of the low-lying states are well described by Nambu-Goto; so far this
resembles our findings in D=2+1. However, and in contrast to the situation in D=2+1,
we see that there are some states with particular quantum numbers, that show large
deviations from the Nambu-Goto spectrum and which display a very slow (if any)
approach to that spectrum as the flux tube length increases.

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