FAKULTÄT für PHYSIK
LUDWIG-MAXIMILIANS-UNIVERSITÄT
MÜNCHEN/GARCHING

PHYSIK-DEPARTMENT
TECHNISCHE UNIVERSITÄT MÜNCHEN
MÜNCHEN/GARCHING

MLL-KOLLOQUIUM

Donnerstag, 02.02.2017, 16^{15} Uhr

Hörsaal der LMU in Garching, Am Coulombwall 1
Treffen zum gemeinsamen Kaffee 16 Uhr

Dr. Patrick Vaudrevange

(Physik-Department, Technische Universität München)

Towards Unification of Particle Physics from String Theory

Motivated by phenomenology we discuss extensions of the Standard Model of particle physics, in detail, grand unified theories (GUTs) and supersymmetry (SUSY). It is shown that these extensions might point towards extra-dimensions and, hence, towards string theory. Therefore, we analyze compactifications of the heterotic string, especially on six-dimensional orbifolds. A complete classification of orbifolds that preserve SUSY in four dimensions is given and we present some of their properties, like the mechanism of orbifold-GUT-breaking, the origin of discrete symmetries (including R- symmetries) and discrete anomalies. These symmetries might be of phenomenological interest as they can be used to address the problem of proton decay, the μ-problem, the flavour puzzle and the QCD axion.

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