

FAKULTÄT für PHYSIK
LUDWIG-MAXIMILIANS-UNIVERSITÄT
MÜNCHEN/GARCHING

PHYSIK-DEPARTMENT
TECHNISCHE UNIVERSITÄT MÜNCHEN
MÜNCHEN/GARCHING

MLL-KOLLOQUIUM

Donnerstag, 31.10.2013, 16¹⁵ Uhr

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

Dr. Marco Drewes

(TU München, Physik-Department T70)

Is the Standard Model (almost) complete? - How Right Handed neutrinos can explain (almost) everything

Neutrinos are the only particles in the Standard Model of particle physics that have only been observed with left handed chirality to date. If right handed neutrinos exist, they could be responsible for several phenomena that have no explanation within the Standard Model, including neutrino oscillations, the baryon asymmetry of the universe, dark matter and dark radiation. After a pedagogical introduction, we review recent progress in the phenomenology of right handed neutrinos. We in particular discuss the mass ranges suggested by hints for neutrino oscillation anomalies and dark radiation (eV), sterile neutrino dark matter scenarios (keV) and experimentally testable theories of baryogenesis (GeV to TeV). We summarize constraints from theoretical considerations, laboratory experiments, astrophysics and cosmology for each of these.

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