



Department of
Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

K(E10) and Standard Model Fermions

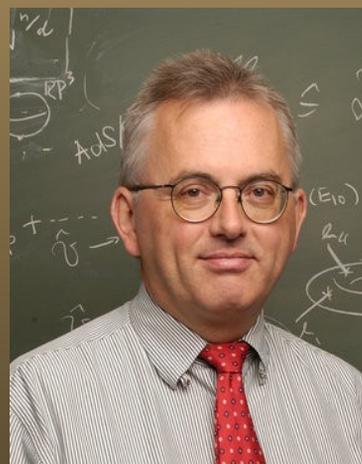
Hermann Nicolai

(Max Planck Institute for
Gravitational Physics)

Date: November 13, 2019

Time: 10.00 am

Venue: A-304, TIFR



In this talk I will explain the possible relevance of the 'maximally extended' hyperbolic Kac-Moody algebra E_{10} and its maximal compact subalgebra $K(E_{10})$ for unification. In particular I will show how $K(E_{10})$ can be put to use to amend a proposal due to M. Gell-Mann aimed at identifying the 48 spin-1/2 fermions of $N=8$ supergravity that remain after complete breaking of supersymmetry with the 3×16 quarks and leptons of the Standard Model. The supermassive gravitinos could then play a crucial role in explaining both dark matter and the ultra-high energy cosmic ray (UHECR) events observed over many years at the Pierre Auger Observatory.