

# GEOMETRY & PHYSICS SEMINAR

**16 Outubro | 16:00 | sala 6.2.33**

## Internal symmetries in Kaluza-Klein models

**João Baptista**

**Abstract:**

Kaluza-Klein models are an old line of research seeking a geometrical unification of the different physical forces. During the 1980s they were largely set aside, due both to specific technical difficulties and to the trend towards superstrings. In this talk I will re-examine two important technical difficulties traditionally imputed to Kaluza-Klein and suggest that, in fact, progress may be possible within a slightly more general geometrical framework. On the physics side, I will talk about mass generation for gauge bosons, chiral fermions, inflation and the very small value of the cosmological constant. On the geometry side, I will talk about scalar curvature in general Riemannian submersions, Diff(K)-gauge theories, unstable Einstein metrics and left-invariant metrics on Lie groups.

CMAF<sub>c</sub>IO