

Fermion representations in GUTs: on the quest for family unification

Wednesday, September 30, 2015 3:00 PM (0:15)

Abstract content

Grand unified theories have been with us for more than four decades. While attractive, the standard $SU(5)$ and $SO(10)$ models fail to shed light on the flavour problem since, just like the Standard Model, they too place the fermions in three copies of representations of the enlarged gauge group. What about the possibility of having family unification by putting all fermions in a single representation? In this talk I will report on this possibility based on an extensive computer scan over (I) different unification groups G , (II) different embeddings of the SM group in G , and (III) different representations of G . It turns out that family unification is possible with large $SU(N)$ groups - for example, one can place all fermions in the 171 representation of $SU(19)$.

Summary

Primary author(s) : Dr. FONSECA, Renato (Instituto de Física Corpuscular (University of Valencia/CSIC))

Presenter(s) : Dr. FONSECA, Renato (Instituto de Física Corpuscular (University of Valencia/CSIC))

Session Classification : Particle Phenomenology