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TALK: E6 Unification: Intermediate Symmetries, Fermion Masses and Proton Decay

Monday, July 15, 2024 10:00 AM (45 minutes)

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I will present a non-supersymmetric E6 GUT with the scalar sector consisting of $650 + 351' + 27$ dimensional representations. The intermediate symmetries which turn out to be realistic under the extended survival hypothesis (with minimal fine-tuning) are trinification symmetry $SU(3)_C \times SU(3)_L \times SU(3)_R$ with either LR or CR parity, and $SU(6)_{CR} \times SU(2)_L$. This means among others that they can reproduce correctly the light charged fermion and neutrino masses as well as the CKM and PMNS mixing matrices. Although the successful cases give a large range for proton lifetime estimates, all of them include regions consistent with current experimental bounds and within reach of forthcoming experiments.

Presenter: BAJC, Borut