Contribution ID: **444** Type: **Invited talk in the parallel session**

Division algebraic symmetry breaking

Monday, 5 July 2021 17:50 (20 minutes)

Can the 32C-dimensional algebra R(x)C(x)H(x)O offer anything new for particle physics? Indeed it can. Here we identify a sequence of complex structures within R(x)C(x)H(x)O which induces a cascade of breaking symmetries: Spin(10) -> Pati-Salam -> Left-Right symmetric -> Standard model + B-L (both pre- and post-Higgs-mechanism). These complex structures derive from the octonions, then from the quaternions, then from the complex numbers.

Primary authors: Dr FUREY, Nichol (Humboldt-Universität zu Berlin); Dr HUGHES, Mia (Imperial College London)

Presenter: Dr FUREY, Nichol (Humboldt-Universität zu Berlin)

Session Classification: Mathematical Problems of Relativistic Physics: Classical and Quantum

Track Classification: Alternative Theories: Mathematical Problems of Relativistic Physics: Classical and Quantum