

**Seminar on**  
**THEORETICAL PARTICLE PHYSICS**

on Friday, 3 June 2016, at 11.00 a.m.  
Theresienstraße 37 / III, Seminar Room A348 / 349

Speaker: Domènec Espriu  
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Title: „TeV Resonances in WW Scattering“

**Abstract**

A moderate diboson excess was observed ---albeit with very limited statistical significance--- in WW, WZ and ZZ final states at the LHC experiments using the accumulated 8 TeV data. More recently a diphoton excess has been found in the preliminary 13 TeV data. It is tempting to interpret these possible excesses as being due to resonances resulting from an extended symmetry breaking sector in the standard model. Assuming that such an extended EWSB sector exists and exact custodial symmetry we determine using unitarization methods the values of the relevant low-energy constants in the corresponding effective Lagrangian, which can then be compared with direct measurements of anomalous couplings. Unitarity arguments also predict the widths and cross-sections of these resonances. We shall conclude that while resonances of the required characteristics are likely to be present, their production cross-sections are typically too low to have been (yet) detected. Finally, we introduce unitarized form factors to allow for a proper treatment of the resonances in Monte Carlo generators and a more precise comparison with experiment.