

Prize Talk PV VII Tue 14:00 H-Aula/HS I/HS X
Flavour Expedition to the Zeptouniverse — ●ANDRZEJ J. BURAS
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After the completion of the Standard Model (SM) through the Higgs discovery particle physicists are waiting for the discovery of new particles either directly with the help of the Large Hadron Collider (LHC) or indirectly through quantum fluctuations causing certain rare processes with a change of quark flavour to occur at different rates than predicted by the SM. While the latter route is very challenging, requiring very precise theory and experiment, it allows a much higher resolution of

short distance scales than it is possible with the help of the LHC. In fact in the coming flavour precision era, in which the accuracy of the measurements of rare processes and of the relevant theory calculations will be significantly increased, there is a good chance that we may get an insight into the scales as short as 10^{-21} m (Zeptouniverse) corresponding to energy scale of 200 TeV or even shorter distance scales. The main strategies for reaching this goal will be explained in simple terms. We will summarize the present status of deviations from SM predictions for a number of flavour observables and list prime candidates for new particles responsible for these so-called anomalies. A short outlook for coming years will be given.