

## Enhancement of $\text{Br}(B_d \rightarrow \mu^+ \mu^-)/\text{Br}(B_s \rightarrow \mu^+ \mu^-)$ in supersymmetric unified models

*Monday, 24 August 2015 17:20 (25 minutes)*

The recent measurement of the branching fractions of the rare B meson decays,  $B_d^0 \rightarrow \mu^+ \mu^-$  and  $B_s^0 \rightarrow \mu^+ \mu^-$ , is one of the most impressive achievements of the LHC experiments. The ratio of the branching fractions is about 2 sigma above the standard model prediction. Although the deviation is not very significant in the current statistical status, it is interesting to study a new physics model in which  $\text{Br}(B_d \rightarrow \mu^+ \mu^-)$  is enhanced naturally but not  $\text{Br}(B_s \rightarrow \mu^+ \mu^-)$  since in popular models to generate the new flavor violation the excess of  $B_s \rightarrow \mu^+ \mu^-$  decay is also generated.

In this talk, we suggest an anti-symmetric coupling as a new source of flavor violation which can naturally explain the enhancement of the ratio, and study its implication in the framework of supersymmetric unified models, such as SU(5) and SO(10). The allowed parameter space is typically represented by pseudoscalar Higgs mass  $m_A < 1$  TeV and  $\tan \beta (= v_u/v_d) \sim 20$  for squark and gluino masses around 2 TeV.

[This talk is based on the paper arXiv:1501.02044, published in PRD]

**Primary author:** Dr MIMURA, Yukihiro (National Taiwan University)

**Co-author:** Prof. DUTTA, Bhaskar (Texas A&M University)

**Presenter:** Dr MIMURA, Yukihiro (National Taiwan University)

**Session Classification:** Flavor Violation

**Track Classification:** Flavor Violation Theory and Experiment