Contribution ID: **37** Type: **not specified**

# Addressing the CKM unitarity problem with a vector-like up quark

*Tuesday 28 June 2022 17:30 (15 minutes)*

We point out that hints of deviations from unitarity in the first row of the CKM matrix may be explained by the presence of a single vector-like top. We study how the stringent experimental constraints arising from CP Violation in the kaon sector and from meson mixing can be satisfied in the proposed framework. In order for the deviations from unitarity to be of the required size while keeping the theory perturbative, the new top quark should have a mass below 7 TeV, which could be probed in upcoming experiments at the energy frontier.

**Authors:** BRANCO, Gustavo (Instituto Superior Tecnico); REBELO, Margarida Nesbitt (Instituto Superior Tecnico (IST)); M. F. PEREIRA, Pedro (Instituto Superior Tecnico); Dr SILVA-MARCOS, J. I.; PENEDO, Joao (CFTP/IST, Lisbon)

**Presenter:** M. F. PEREIRA, Pedro (Instituto Superior Tecnico)

**Session Classification:** Parallel Session III.1