

30th International Symposium on Lepton Photon Interactions at High Energies



Contribution ID: 5

Type: **Parallel session talk**

Within and beyond the SM via $b \rightarrow u$ decays

Tuesday, 11 January 2022 15:40 (20 minutes)

Armed with the Lattice and the most recent inputs from LCSR for the $B \rightarrow \pi$ form factors, we revisit the extraction of exclusive V_{ub} from the data on $B \rightarrow \pi l \nu$ branching ratios (BR's) from Belle and Babar. We analyze the complete set of available data and comment on the outliers, pointing out the differences between such an analysis and the one done by HFLAV previously using an “averaged” dataset. We carry out robust Frequentist and Bayesian fits and show that the tension between the exclusive and inclusive values for V_{ub} can be brought down to within 1σ . Furthermore, we define different fit scenarios using the available $B \rightarrow \pi, \rho l \nu$ experimental information along with the corresponding Lattice and the updated LCSR inputs and predict the values of a few observables within the SM for these scenarios. We also discuss the new physics (NP) sensitivities of these observables and obtain bounds on a few NP Wilson coefficients in $b \rightarrow u \tau \nu$ decays. We show that this sector allows for sizeable NP contributions and predict a few angular observables relevant to these modes.

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Session Classification: Quark and charged lepton flavour

Track Classification: Flavour