Contribution ID : **47** Type : **parallel talk**

B decays with leptons: powerful probes of New Physics with BaBar data

Monday, 2 June 2014 17:10 (0:20)

Collaboration

BaBar

Abstract content

B decays with leptons in the final states are in general affected by small theoretical uncertainties and have quite clean experimental signatures. These makes the semileptonic $B \to Xl\nu$ and $B \to Xll$ channels extremely interesting to search for physics beyond the Standard Model directly through the effect that new particles can give to some of these channels or indirectly through the clean measurements of the magnitude of the CKM matrix elements V_{cb} and V_{ub} that are crucial constraints in all the existing CKM fitters. We present results obtained with the full data set of about 470 millions B meson pairs recorded by the BABAR experiment at the PEP-II e^+e^- storage ring. In particular we report on studies of B-meson decays in inclusive and exclusive penguin decays $B \to Xl^+l^-$, that are sensitive to new heavy particles in the loops. We also cover the most recent semileptonic B decays $B \to Xl\nu$ that allow to extract the magnitude of the V_{ub} and V_{cb} CKM parameters. We will also present new results on the SM forbidden $B \to Xl^+l^+$ that put strong constrain on the presence of heavy Majorana neutrinos. Last but not least the leptonic and semileptonic decays with taus allow to put constraint on the charged Higgs masses and couplings that are competitive with the direct search at the LHC experiments. We will review the most recent results.

Primary author(s) : ROTONDO, Marcello (INFN Padua)

Presenter(s) : ROTONDO, Marcello (INFN Padua)

Session Classification : Parallel Session C4