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Model-independent extraction of form-factors and $|V_{cb}|$ in $\overline{B} \to D\ell^m\overline{\nu_\ell}$ with hadronic tagging at $BABAR$

Tuesday 30 May 2023 14:30 (15 minutes)

Employing the full $BABAR$ dataset, the first two-dimensional unbinned angular analysis of the semileptonic decay $\overline{B} \to D\ell^m\overline{\nu_\ell}$ is performed in both q^2 and lepton helicity angle, making use of the hadronic reconstruction of the tag-side B meson. Here ℓ stands for an electron or a muon. A novel data-driven signal-background separation procedure with minimal dependence on simulation is developed, that preserves all multi-dimensional correlations present in the data.

Including input from latest lattice QCD and previously available experimental data, the underlying form-factors are extracted in both model-dependent and independent methods. The CKM matrix element $|V_{cb}|$ and the SM prediction of the lepton-flavor universality violation variable R(D) are extracted.

Presenter: ROTONDO, Marcello

Session Classification: Parallel Talks

Track Classification: Parallel talks