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An angular analysis of the $B^0 \to D^* \mu\nu$

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$b \to c l\nu$ angular analyses can provide valuable input of understanding New Physics in semileptonic B decays. An angular analysis of the $B^0 \to D^* \mu\nu$ decay is presented utilizing data collected by the LHCb experiment with $3 fb^-1$ integrated luminosity. Measurements of $R(D^*) - R(D)$ show a ˜3.2σ deviation from Standard Model (SM) predictions, motivating a detailed study of angular observables. A five-dimensional binned fit is used for extracting the New Physics (NP) contributions via the Wilson coefficients. Additionally the form factor parameters from CLN, BGL and BLPR are measured in a Standard Model scenario. In this contribution the blinded results of this analysis are presented. A key aspect of this work is an extensive set of NP toy studies exploring different NP scenarios, with multiple free WC parameters, providing insights into the parameter space relevant for effective filed theories concerning NP contributions. These results improve constraints on hadronic form factors and NP operators, offering valuable input for future theoretical and experimental developments in semileptonic B decays.

Author: NUR, Hasret (University of Glasgow (GB))

Presenter: NUR, Hasret (University of Glasgow (GB))

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