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Measurement of the decay $B \rightarrow D^* l^+ \nu$ and determination of $|V_{cb}|$ at Belle

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We present measurements of the branching fraction and the HQET form factors ρ^2 , R_1 and R_2 for the decay $B^0 \rightarrow D^- l^+ \nu$ using untagged $Upsilon(4S) \rightarrow B \text{ anti-}B$ events. The Cabibbo-Kobayashi-Maskawa matrix element $|V_{cb}|$ is extracted and a test of the form factor parametrization is presented. The results are based on a large data sample recorded by the Belle detector at the KEKB $e^+ e^-$ collider.

The measurement of the decay $B^+ \rightarrow \text{anti-}D^0 l^+ \nu$ does not rely on charged slow pion reconstruction, and thus allows us to cross-check measurements of $B^0 \rightarrow D^* l^+ \nu$. We also present measurements of the branching fraction and of the HQET form factors ρ^2 , R_1 and R_2 obtained with this decay.

Primary author: TRABELSI, Karim (KEK)

Presenter: DUNGEL, Wolfgang (Austrian Academy of Sciences)

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