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## Measurement of $B^- \rightarrow D^{(*)} \tau \nu$ , using semileptonic tag and leptonic $\tau$ decays with the *BABAR* detector.

Friday, July 8, 2022 4:12 PM (17 minutes)

Semileptonic decays of  $B$  mesons involving the high-mass  $\tau$  lepton are sensitive probes for physics beyond the Standard Model. The relative rates of branching fractions  $R(D) = \mathcal{B}(B \rightarrow D\tau\nu)/\mathcal{B}(B \rightarrow D\ell\nu)$  and  $R(D^*) = \mathcal{B}(B \rightarrow D^*\tau\nu)/\mathcal{B}(B \rightarrow D^*\ell\nu)$  ( $\ell = e, \mu$ ) are independent of the CKM element  $|V_{cb}|$  and of other theoretical uncertainties. Based on the  $433 \text{ fb}^{-1}$  data collected at the  $\Upsilon(4S)$  resonance by the *BABAR* detector at the PEP-II collider located at the SLAC National Accelerator Laboratory, we report a measurement of  $R(D)$  and  $R(D^*)$  using semileptonic  $B$ -tagging and leptonic  $\tau$  decays.

### In-person participation

No

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**Session Classification:** Quark and Lepton Flavour Physics

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