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Mesurement of the $D^{*+} - D^+$ mass difference MICHAEL SOKOLOFF, Univ of Cincinnati, BABAR COLLABORATION — We measure the mass difference, Δm_+, between the $D^*(2010)^+$ and the D^+, using the decay chain $D^*(2010)^+ \to D^+\pi^0$ with $D^+ \to K^-\pi^+\pi^+$. The data were recorded with the BaBar detector at center-of-mass energies at and near the $\Upsilon(4S)$ resonance, and correspond to an integrated luminosity of approximately $468\,\text{fb}^{-1}$. We measure $\Delta m_+ = (140\,601.0 \pm 6.8\,[\text{stat}] \pm 12.9\,[\text{syst}])$ keV. We combine this result with a previous BaBar measurement of $\Delta m_0 \equiv m(D^*(2010)^+) - m(D^0)$ to obtain $\Delta m_D = m(D^+) - m(D^0) = (4\,824.9 \pm 6.8\,[\text{stat}] \pm 12.9\,[\text{syst}])$ keV These results are compatible with and approximately five times more precise than previous Particle Data Group averages.

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