Measurement of the $B^0_s \to \psi \phi$ branching fraction at CDF

KERR, University of Illinois, CDF COLLABORATION — We present a measurement of the branching fraction of the decay $B^0_s \to \psi \phi$ with the Collider Detector at Fermilab. Using a data sample corresponding to an integrated luminosity of 10 fb$^{-1}$ of $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV, we utilize a low transverse momentum dimuon trigger to acquire a large sample of $\psi \to \mu^+\mu^-$ decays. We form fully reconstructed $B^0_s \to \psi \phi$ and $B^0 \to \psi K^*$ candidates using information from the central tracking system and determine the branching fraction of $B^0_s \to \psi \phi$ by normalizing with the $B^0 \to \psi K^*$ decay. The measurement improves the current world average value and can be used to extract information about the ratio of fragmentation fractions $f_{s}/f_{d}$ between $B^0_s$ and $B^0$ production rates.

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