

All charm tetraquarks and recent heavy flavor results at CMS

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With the large dataset and excellent detector performance, CMS has made great progress in heavy flavor results. Recent results include in both (exotic) hadron studies, and CP violation and rare decay studies. The spin-parity of all charm tetraquark candidates observed in $J/\psi J/\psi$ mass spectrum is found to be prefer 2^{++} . The $X(7100)$ is first observed in $J/\psi J/\psi$ channel, and the $X(6900)$ is first observed in $J/\psi \psi(2S)$ channel, both exceeding 5σ . The masses of B^+ , B^0 , and B_s^{*0} are precisely measured via their exclusive reconstructions. CP violating parameters in $B_s^0 \rightarrow J/\psi \phi$ are measured and a 3.2σ evidence of CP violation is found. The rare decay of $D^0 \rightarrow \mu^+ \mu^-$ is searched, and the association production of $Y(1s)$ and Z boson is studied.

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