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Observation of the decays $B \rightarrow \Psi(2S) K_s \pi^+ \pi^-$ and $B_s \rightarrow \Psi(2S) K_s$ at 13 TeV pp collision in the CMS experiment

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The decays $B \rightarrow \Psi(2S) K_s \pi^+ \pi^-$ and $B_s \rightarrow \Psi(2S) K_s$ are observed for the first time based on data samples (2017 and 2018) of pp collision collected with the CMS detector, corresponding to an integrated luminosity 103 inverse femtobarn taken at the centre of mass energy 13 TeV. These decays are observed with a significance exceeding five standard deviations. In this study, the branching fraction of both decays $B_s \rightarrow \Psi(2S) K_s$ and $B \rightarrow \Psi(2S) K_s \pi^+ \pi^-$ relative to the $B \rightarrow \Psi(2S) K_s$ decay are measured.

Session

Beyond the Standard Model

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