

## The $\Lambda_b \rightarrow J/\psi K^0 \Lambda$ and $\Lambda_b$ into $J/\psi \eta \Lambda$ reactions and a hidden-charm pentaquark state with strangeness

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We study the  $\Lambda_b \rightarrow J/\psi K^0 \Lambda$  reaction considering both the  $K^0 \Lambda$  interaction with its coupled channels and the  $J/\psi \Lambda$  interaction. The latter is described by taking into account the fact that there are predictions for a hidden-charm state with strangeness that couples to  $J/\psi \Lambda$ . By using the coupling of the resonance to  $J/\psi \Lambda$  from these predictions we show that a neat peak can be observed in the  $J/\psi \Lambda$  invariant mass distribution, rather stable under changes of unknown magnitudes. In some cases, one finds a dip structure associated to that state, but a signal of the state shows up in the  $J/\psi$  spectrum. The same is done by studying the related  $\Lambda_b \rightarrow J/\psi \eta \Lambda$  reaction, by combining the  $\eta \Lambda$  and  $J/\psi \Lambda$  interactions.

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