

Interpretation of the Ω_c decay into $\pi^+ \bar{K} \Xi$ from the $\Omega(2012)$ molecular perspective

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We study a mechanism for $\Omega_c \rightarrow \pi^+ \Omega(2012)$ production through an external emission Cabibbo favored weak decay mode, where the $\Omega(2012)$ is dynamically generated from the interaction of $\bar{K} \Xi^*(1530)$, $\eta \Omega$, with $\bar{K} \Xi$ as the main decay channel. The $\Omega(2012)$ decays latter to $\bar{K} \Xi$ in this picture, with results compatible with Belle data. The picture has as a consequence that one can evaluate the direct decay $\Omega_c^0 \rightarrow \pi^+ K^- \Xi^0$ and the decay $\Omega_c^0 \rightarrow \pi^+ \bar{K} \Xi^*$, $\pi^+ \eta \Omega$ with direct coupling of $\bar{K} \Xi^*$ and $\eta \Omega$ to $K^- \Xi^0$. We show that, within uncertainties and using data from a recent Belle measurement, all these three channels account for about (12-20)% of the total $\Omega_c \rightarrow \pi^+ K^- \Xi^0$ decay rate. The consistency of the molecular picture with all the data is established by showing that $\Omega_c \rightarrow \Xi^0 \bar{K}^{*0} \rightarrow \Xi^0 K^- \pi^+$ together with $\Omega_c \rightarrow \pi^+ \Omega^* \rightarrow \pi^+ K^- \Xi^0$ account for about 85% of the total $\Omega_c \rightarrow \pi^+ K^- \Xi^0$. I will give a presentation based on Refs. [1]-[3].

[1] N. Ikeno, W. H. Liang, G. Toledo, and E. Oset, Phys. Rev. D 106, 034022 (2022).

[2] R. Pavao and E. Oset, Eur. Phys. J. C 78, 857 (2018).

[3] N. Ikeno, G. Toledo, and E. Oset, Phys. Rev. D 101, 094016 (2020).

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