ID contributo: **55** Tipo: **Invited Talk**

An EFT for the LHCb pentaquarks

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We present the results of a coupled-channel analysis of the J/Ψp invariant mass distribution, in which the Pc states measured by the LHCb collaboration are treated as Σ(∗)cD¯(∗) molecules, for details see [Phys. Rev. Lett., 124, 072001 (2020)] and its recent update [arXiv:2102.07159 [hep-ph], accepted for publication in JHEP]. The approach incorporates the Σ(∗)cD¯(∗) elastic channels and all potentially important inelastic channels, i.e. J/Ψp, ΛcD¯(∗) and ηcp, with the interactions constrained by heavy quark spin symmetry (HQSS). The effects of three-body unitarity from the πΛD¯ intermediate state are also investigated. A special care is taken to constraints from renormalisation-group invariance in the presence of the one-pion exchange potential, which are shown to be extremely important for obtaining sensible results and even for distinguishing between the quantum numbers of the Pc states.

The proposed EFT approach yields a very good description of the data. Apart from the three established states, a new state, associated with the JP=3/2−Σ∗cD¯ molecule and predicted from HQSS, reveals itself already in the current data. The line shapes in the elastic and inelastic channels are predicted and should play the key role in revealing the decay properties of the Pc states and their quantum numbers, once new data become available.

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Classifica Sessioni: Oral Presentations