The Bc->J/psi KD weak decay and its relation with the D*s0(2317)

Friday, 29 July 2016 17:50 (30 minutes)

We study the presence of the the Ds0(2317) resonance in the weak decay process: Bc->J/psi KD. We assume a weak interaction mechanism in which the b quark decays into a c anti-c (J/psi) and anti-s via a W meson. In this process the c anti-s pair hadronizes and the possible final configurations considered are KD and eta Ds. We compute the interaction of these two meson channels in the chiral unitary approach. Then we consider the Ds0(2317) as mainly a KD molecular state, and we fit the parameters of the theory in order to get a bound state pole in the S-matrix at the experimental mass of the Ds0(2317). We also consider the possibility of an additional q anti-q component in the Ds0(2317), introducing a CDD pole in the potential that describes the interaction. In these possible scenarios we predict the ratio of the invariant mass distribution (Bc->J/psi KD)/(Bc->Ds0(2317)). In all cases the invariant mass distribution peaks very close to the KD threshold suggesting the presence of the Ds0(2317) resonance. Based on "D*s0(2317)+ in the decay of Bc into J/ ψ DK". Phys. Rev. D 93 (2016) no.5, 054028

Presenter: FERNANDEZ-SOLER, PEDRO (IFIC - Instituto de Física Corpuscular (CSIC and University of Valencia))

Session Classification: Mesons