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Reanalysis of uudc\bar{c} penta-quark states

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The LHCb collaboration published new data on penta-quark states: three narrow states Pc(4312), Pc(4440), Pc(4457) are claimed. All of these states are higher than the threshold of NJ/psi threshold and appeared as narrow resonances in the scattering channel N-J/psi. We had analyzed these states in EPJC(2016)76:624 and PRD99(2019)014010. In this report we will reanalyze these states and the main points are: 1.The measured ones are resonances, it is better to do resonances scattering calculation rather than as bound states; 2.These states are narrow resonances due to coupling of Sigma_c-D, Sigma_c-D*quark cluster states to the N-J/psi scattering states. Their spin-parity are 1/2-, 3/2- and cannot be positive parity ones; 3. There should be other resonances in this energy region due to Sigma_c*-D,Sigma_c-*D* coupling; 4.In the N-eta_c scattering channel one should be able to observe similar scattering resonances; 5. There might be Jp=1/2- N-eta_c and 3/2- N-J/psi bound states around 3881-3884 and 3997-3998 MeV.

Primary authors: Prof. HUANG, Hongxia (Nanjing Normal University); Prof. PING, Jialun (Nanjing Normal University)

Presenter: Prof. HUANG, Hongxia (Nanjing Normal University)

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