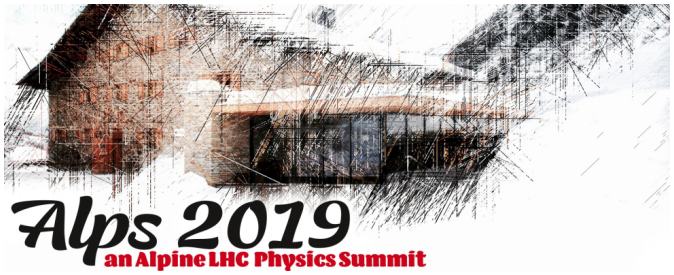

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Exotic bottomonium-like hadrons

Tuesday, 23 April 2019 19:10 (15 minutes)

In recent years, many hadronic states with heavy quarks have been observed which do not fit into the quark model scheme. Investigation of the nature and properties of such exotic states is an important task for the phenomenology of strong interactions. Most intriguing are charged states which at the same time contain a heavy quark-antiquark pair, since their minimal quark contents is four-quark and, therefore, their exotic nature is undoubted. A combined analysis of the existing experimental data on the production and decay channels of the isovector bottomonium-like states Zb(10610) and Zb(10650) (with the quantum number 1+-) is performed in the framework of a coupled-channel approach which respects constraints from unitarity, analyticity and heavy quark spin symmetry. The latter symmetry, inter alia, allows one to relate properties of the Zb's with those of their spin partners WbJ (with the quantum numbers J++, J=0,1,2) which differ from the Zb's by the orientation of the heavy quark spins. As a result, the pole positions and the line shapes in different elastic and inelastic channels are predicted for the WbJ's in a parameter-free way. The developed approach admits a natural generalisation to other exotic states, in particular, to charmonia.

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