



Contribution ID: 682

Type: **Poster Presentation**

Compact Pentaquark Structures

The lightest pentaquark state recently observed by the LHCb collaboration, $P(4380)$, is described with a compact multiquark approach. By using very general arguments, dictated by symmetry considerations, it is shown that this state belongs to an $SU(3)$ flavour octet. A complete classification of all possible states and quantum numbers, which can be useful both to the experimentalists in their search for new findings and to theoretical model

builders is given, without introducing any particular dynamical model. Some predictions finally are provided with a Gürsey-Radicati inspired mass formula. The predicted mass of the lightest pentaquark state reported by LHCb, $P(4380)$, is in agreement with the experimental mass within one standard deviation.

Moreover, the predicted masses of the all the octet pentaquark states and the possible bottom baryon decay channels, which involve the predicted resonances as intermediate states, are provided.

Finally, the partial decay widths for all the predicted pentaquark resonances are computed.

Experimental Collaboration

Authors: GIACHINO, Alessandro (INFN - National Institute for Nuclear Physics); Dr SANTOPINTO, Elena (INFN)

Presenter: GIACHINO, Alessandro (INFN - National Institute for Nuclear Physics)

Session Classification: Poster session

Track Classification: QCD and Hadronic Physics