MEETING OF THE AMERICAN PHYSICAL SOCIETY DIVISION OF PARTICLES AND FIELDS

Contribution ID: **64** Type: **Presentation**

Regge Trajectories of triply heavy baryons

Tuesday, 1 August 2017 11:57 (18 minutes)

Ω_{ccc}, Ω_{bbb}, Ω_{ccb} and Ω_{bbc} baryons are considerable theoretical interest in a baryonic analogue of heavy quarkonium because of the color-singlet bound state of three heavy quark (c,b) combination inside ({\it free from light quarks}) \cite{olive}. Regge trajectories are concerned with the mass spectrum of the particles so that the present study exhibits the regge trajectories obtained from excited states of four experimentally unknown triply heavy Ω baryons. The trajectories are plotted in (n, M^2) and (J, M^2) planes which is helpful to determine the unknown quantum number and J^P values. The calculations have computed in Hypercentral Constituent Quark Model with hyper coulomb plus linear potential \cite{EPJC}. Many author have also study the mass spectra by different approaches\cite{brown, PAD2014, vijande2015, kwei2}. However, LHCb experiment possibly detect Ω_{bbb}, Ω_{bbc} and Ω^*_{bbc} baryons at appropriate integrated luminosity and collision energy \cite{lhcb}.

\begin{thebibliography}{90}
\bibitem{olive}{C. Patrignani et. al., Chin. Phys. C \textbf{40}, 100001 (2016)}.
\bibitem{kwei2}K-W Wei, B. Chen and X-H Guo, Phys. Rev. D \textbf{92}, 076008 (2015).
\bibitem{EPJC}Z. Shah, K. Thakkar and A. K. Rai, Eur. Phys. J. C {\bf76}, 530 (2016); Eur. Phys. J. C {\bf77}, 129 (2017);Chin. Phys. C \textbf{40}, 123102 (2016).
\bibitem{brown}Z. S. Brown, W. Detmold, S. Meinel, and K. Orginos, Phys. Rev. D \textbf{90}, 094507 (2014)
\bibitem{PAD2014} M. Padmanath, R. G. Edwards, N. Mathur, and M. Peardon, Phys. Rev. D \textbf{90}, 074504 (2014)
\bibitem{vijande2015} J. Vijande, A. Valcarce and H. Garcilazo, Phys. Rev. D \textbf{91}, 054011 (2015).
\bibitem{lhcb}S.-Z. Wu, Y.-W. Li and R. Rashidin, Phys. Rev. D {\bf 86}, 114504 (2012)

\end{thebibliography}

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Session Classification: QCD

Track Classification: QCD