

## Regge trajectories in $(n, M^2)$ and $(J, M^2)$ planes for higher excited states for $\Lambda_b^0$ baryon

We computed excited state masses of singly heavy  $\Lambda_b^0$  baryon in the framework of Hypercentral Constituent Quark Model. We use hyper coulomb plus power potential, varying  $(\nu)$  from S.R.(1/2) to quadratic(2.0), in the calculation of ground and radial excited state masses. After that, orbital excited states are also determine for linear( $\nu=1.0$ ) potential. We also introduced first order correction to the potential. The ground state  $\Lambda_b(5619)^0$  and two orbital excited states  $\Lambda_b(5912)^0$  and  $\Lambda_b(5920)^0$  are found experimentally and our obtained masses for these states are  $m_{\Lambda_b}(1/2^+) = 5620$ ,  $m_{\Lambda_b}(1/2^-) = 5992$  MeV and  $m_{\Lambda_b}(3/2^-) = 5980$  MeV reasonably close to them. We also compare our results with other theoretical models and they are in good agreement. From this, we also plot Regge trajectories in  $(n, M^2)$  and  $(J, M^2)$  planes for higher excited states.

### Preferred Track

Open Heavy Flavors

### Collaboration

Not applicable

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