Study of the spin-flavor structure of excited baryon masses from lattice QCD\(^1\) ISHARA FERNANDO, Hampton University — The known classification of excited baryons based on the dynamical symmetry group \(SU(6) \times O(3)\) can be understood in the framework of the \(1/N_c\) expansion\(^1\). The application to masses \(^2\text{-}5\) based on the experimentally determined masses can now be extended to the case of baryon masses obtained in lattice QCD\(^6\text{-}7\). The work to be presented analyses the ground state as well as the excited multiplets \([70,1^-],[56,0^+]\) and \([56,2^+]\). Mass relations which are valid up to corrections \(1/N_c^2\), or \(1/N_c(m_s - m_d)\), and \((m_s - m_d)^2\) are tested and conclusions on quark mass dependence of the effective mass operators and minimal sets of effective mass operators are obtained.


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Jose Goity
Jefferson Lab

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