Double Heavy Baryons and Corrections to Heavy Quark-Diquark Symmetry[1] ABHISHEK MOHAPATRA, THOMAS MEHEN, Duke University — In the $m_Q \to \infty$ limit, the hyperfine splittings in the ground state doubly heavy baryons (QQq) and single heavy antimesons $(\bar{Q}q)$ are related by heavy quark-diquark symmetry (HQDQ) as the light degrees of freedom in both the hadrons are expected to have identical configurations. In this talk, I will point out the existence of perturbative and nonperturbative corrections to the HQDQ symmetry hyperfine splitting relation that scale as $\mathcal{O}\left(\alpha_s^2\right)$ and $\Lambda_{\mathrm{QCD}}^2/m_Q^2$ respectively. In the extreme heavy quark limit, the perturbative corrections to hyperfine splitting of doubly charm or bottom baryons are a few percent or smaller. The nonperturbative corrections to hyperfine splitting are of order 10% in the case of doubly charm baryons and 1% or smaller in doubly bottom baryons.

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Date submitted: 16 Jan 2020

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