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Setting the Scale Using Baryon Masses with Isospin-Breaking Corrections

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We present first results from our effort to incorporate isospin-breaking effects stemming from the non-degeneracy of the light quark masses and electromagnetic interactions into the determination of the lattice scale. To this end we compute the masses of octet and decuplet baryons on isospin-symmetric ensembles generated by the CLS effort for $N_f = 2 + 1$ flavours and include isospin-breaking effects perturbatively. We show leading-order results for baryon masses on two ensembles with $m_\pi \approx 290$ MeV and $m_\pi \approx 215$ MeV at a lattice spacing of $a \approx 0.076$ fm.

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