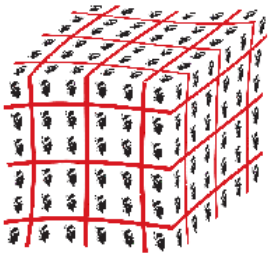

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Excited states of the nucleon in 2+1 flavour QCD

Tuesday, 15 June 2010 10:50 (20 minutes)

Recent developments on the determination of the spin-1/2 spectrum of the nucleon in full QCD are presented. Our focus is on the PACS-CS 2+1 flavour configurations made available through the ILDG. Using correlation matrix techniques, in which a wide variety of gauge-invariant Gaussian-smeared fermion-propagator sources and sinks are considered, excited states are determined. We consider several correlation matrices of various sizes, each constructed with a different set of basis interpolators, in order to demonstrate the invariance of the eigenstates on the basis choice. Of particular interest is the approach to the elusive Roper resonance and the nature of the level crossing between the lowest-lying even- and odd-parity eigenstates as the quark masses approach their physical values. We report new results in full QCD which differ significantly from that observed in the quenched approximation, providing further insight into QCD dynamics.

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talk

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