

JULY 16

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TITLE:

Nuclear states and spectra in holographic QCD

ABSTRACT:

A new method to study nuclear physics via holographic QCD is proposed. Multiple baryons in holographic QCD are described by a matrix model which is a low energy effective theory of D-branes of the baryon vertices. We study the quantum mechanics of the matrix model and calculate the eigenstates of the Hamiltonian. The obtained states are found to coincide with known nuclear and baryonic states. Calculated spectra for small baryon numbers show good agreement with experimental data. For hyperons, the Gell-Mann–Okubo formula is approximately derived. The model partially explains even the magic numbers of light nuclei, $N = 2, 8$ and 20 . This talk is based on a work in collaboration with Yoshinori Matsuo and Takeshi Morita: