

Holographic Baryons

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The holographic method is one of the only ways of getting analytic insight into most strongly coupled systems. When numerical methods are not available, it is even the best technique we know of to tackle these problems. In particular, lattice QCD is unable to provide results at finite baryon density, which is why a lot of effort is put into the study of holographic QCD at high density. Densities beyond the nuclear density are not only a theoretical frontier, but are reached in real systems such as neutron star cores and future heavy ion collision experiments. In this talk I will discuss the most elementary aspect of baryonic physics in holography, that is the study of a single baryon state. I will start by reviewing the construction of baryons in the chiral effective field theory to highlight the common points and differences with the holographic approach. I will then discuss the qualitative features of holographic baryons, obtained already in models where the back-reaction of quarks on the glue sector of QCD is neglected and finally present our recent work in the framework of the V-QCD model, which is the most complete holographic model of QCD and the only one to implement flavor back-reaction.

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