

Near-BPS Skyrmions and nuclear matter  
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*Abstract*

The Skyrme model is a good candidate for describing the low-energy phase of QCD in the large- $N$  limit. That model consists of a meson-field-theory that admits the existence of static classical solutions different from the trivial vacuum. These stable solutions, generally known as topological solitons, are called Skyrmions in the context of the Skyrme theory and their stability is guaranteed by the presence of a conserved topological charge. Due to the identification of that topological charge with the baryon charge, the Skyrmions are meant to describe baryons and nuclei. Beyond the various successful results in the description of the nuclear matter, one of the main problems of the model remains the too large binding energy predicted for nuclei. To this end, we proposed a new Skyrme-like field theory, called "near-BPS", that is supposed to resolve that problem.