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Gauged Aloof Baby Skyrme Model

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I present a study of U(1) gauged modification of the 2+1 dimensional planar Skyrme model with a particular choice of the symmetry breaking potential term which combines a short-range repulsion and a long-range attraction. In the absence of the gauge interaction the multi-solitons of the model are aloof, they consist of the individual constituents which are well separated. Peculiar feature of the model is that there are usually several different stable static multi-soliton solutions of rather similar energy in a topological sector of given degree. I investigated the pattern of the solutions and find new previously unknown local minima. It is shown that coupling of the aloof planar multi-Skyrmions to the magnetic field strongly affects the pattern of interaction between the constituents. I analyse the dependency of the structure of the solutions, their energies and magnetic fluxes on the strength of the gauge coupling. It is found that, generically, in the strong coupling limit the coupling to the gauge field results in effective recovering of the rotational invariance of the configuration.

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