

# Compact baby Skyrmions immersed in a continuous medium and the presence of a magnetic impurity

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We investigate the existence of compact self-dual configurations in the restricted gauged baby Skyrme model in two situations: *(i)* when immersed in a continuous medium and *(ii)* in the presence of a magnetic impurity. For this purpose, we implement the Bogomol'nyi procedure that provides the self-dual equations whose solutions saturate the energy's respective lower bound (or Bogomol'nyi bound). We specifically solve the BPS equations, focussing on a class of topological structure called compacton.