

BPS Maxwell Chern Simons vórtices with internal structures the abelian Higgs case

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We investigate the existence of first-order vortices inherent to both the Maxwell-Chern-Simons-Higgs model extended via the inclusion of an extra scalar sector which plays the role of a source field. For this case, we focus our attention on the time-independent configurations with radial symmetry which can be obtained through the implementation of the so-called Bogomol'nyi-Prasad-Sommerfield (BPS) prescription. In this sense, in order to solve the corresponding first-order differential equations, we introduce some particular scenarios which are driven by the source field whose presence, we expect, must change the way the resulting vortices behave. After solving the effective first-order system through a finite-difference algorithm, we comment about the main new effects induced by the presence of the source field in the shape of the final configurations.

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