

Quantum vortices in a black hole

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Abstract

In this paper we discuss the quantum vortices in a black hole. We analyze the effect of the presence of an internal magnetic field on the quantum vortices. We find that the vortices in a black hole are governed by the effects of the internal magnetic field. We find that the effect of the anisotropic external magnetic field has a stronger effect in the vicinity of the black holes than the effect of the external magnetic field. In order to obtain the black hole behavior, we use the Einstein-Maxwell-Higgs theory in the vicinity of the black holes.