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Anisotropic optical response of dense quark matter under rotation - compact stars as cosmic polarizers -

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Quantum vortices in the color-flavor locked (CFL) phase of QCD have bosonic degrees of freedom localized on them, called the orientational zero modes. We show that the orientational zero modes are electromagnetically charged. As a result, a vortex in the CFL phase nontrivially interacts with photons. We show that a lattice of vortices acts as a polarizer of photons with wavelengths larger than some critical length.

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