Nonlocal vortex description obtained through dual transformations

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There are many quantum field systems that can be represented by vortices (e. g., thin superconducting films) and effective models that attempt to fit the multitude of effects experimentally produced comes in a wide variety. In this context, we inverstigate a model with vortex solutions through a dual transformation in such a way that we obtain a nonlocal planar model with both the Pseudo-Quantum-Electrodynamics (PQED) maxwell-like term and reduced massive term for vectorial fields that could be undesrstood as an interaction among the planar vortices. The spontaneous symmetry breaking process adopted results in the nonlocal modification Chern-Simons and Proca mass terms.

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