

Abstract Submitted
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Axions strings and Goldstone-Wilczek currents in quantum spin systems and topological insulators AKIHIRO TANAKA, National Institute for Materials Science — Axion, originally a high-energy physics entity, has in recent years come into focus in the condensed matter community due to its incarnation in the physics of topological insulators. Much of the discussion so far has concentrated on the physics at the interface/junction of these insulators, which can be viewed as axion domain walls. Here we look into a slightly different situation: axion strings, which are vortex configurations of the axion fields. We discuss how these objects can arise in quantum spin systems and topological insulators, along with their electrodynamic and elastic implications. We also point to some novel Goldstone-Wilczek fermionic currents which can be relevant to the systems considered.

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