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Emergent magnetic monopoles in degenerate theory

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We show that a magnetic charge in curved spacetime could be an artefact of a vacuum phase with zero metric determinant at a distance. This phase is characterized by a solution of the first order field equations with nontrivial torsion. The monopole charge has a topological origin, given precisely by a lower-dimensional counterpart of the Nieh-Yan invariant in absence of matter. In this geometric realization, the monopole core remains hidden from the observer living in the invertible metric phase, thus precluding its direct detection.

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