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Hyperbolic Matter in Electrical Circuits with Tunable Complex Phases

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We introduce the theory of hyperbolic matter, a novel paradigm for topological states made from particles moving in the infinite two-dimensional hyperbolic plane. Negative curvature of space is emulated through a hyperbolic lattice. Utilizing topoelectric circuit networks relying on a newly developed complex-phase circuit element, we experimentally realize hyperbolic graphene as an example of topologically nontrivial hyperbolic matter and compare measurements of Dirac particles and Berry curvature to hyperbolic band theory.

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