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Lattice Weyl Fermion on a single spherical domain-wall 1

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In the standard lattice domain-wall fermion formulation, two flat domain-walls are put where both of the left- and right-handed massless modes appear on the walls. In this work we investigate a single spherical domain-wall fermion mass term embedded into a flat square three-dimensional lattice. In the free fermion case, we find that a single Weyl fermion appears at the wall and it feels gravity through the induced spin connection. With nontrivial link variables we discuss the perturbative anomaly inflow between the bulk and edge fermions.

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