

Simulating analogue holography in flexible Dirac semi-metals

We explore an apparent holography-like relationship between the bulk and boundary properties of non-interacting massive Dirac fermions living on a flexible surface, such as a sheet of graphene. It is demonstrated that the boundary correlations can mimic those normally found in the one-dimensional interacting fermions, the actual form of such phantom interaction being determined by the bulk geometry. This geometrical interpretation of the boundary interaction effects offers a new insight into the possible origin of the so-called broad holographic correspondence and suggests potential ways of testing analogue holography in experiment.