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## Constructing superconductors by graphene Chern-Simons wormholes

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We propose a model describing the evolution of free electron current density in graphene giving rise to worm-hole solutions. Based on the concept of M-branes, we perform the analysis using the difference between curvatures of parallel and antiparallel spins. In such a framework an effective graviton emerges in the form of gauge field exchange between electrons. In a plain graphene system, the curvatures produced by both kinds of spins neutralize each other. However, in the presence of geometrical defects of the graphene sheets, the inequality between curvatures leads to the emergence of current densities and conductivity. Depending on the type of the defects, the resulting current density can be negative or positive. Possible applications are discussed.

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