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Fictitious gauge fields in bilayer graphene EROS MARIANI[1], ALEX PEARCE, University of Exeter (UK), FELIX VON OPPEN, Freie Universitaet Berlin (Germany) — We discuss the effect of elastic deformations on the electronic properties of bilayer graphene membranes. Distortions of the lattice translate into fictitious gauge fields in the electronic Dirac Hamiltonian which are explicitly derived for arbitrary elastic deformations. We include gauge fields associated to intra- as well as inter-layer hopping terms and discuss their effects on the strain-induced Lifshitz transition and on the electron-phonon resistivity. Of special interest is the appearance of a linear coupling for flexural modes which is shown to dominate the temperature-dependent resistivity in suspended samples with low tension.

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