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Effect of electron-phonon interaction on the velocity renormalization of the surface state of 3D topological insulator[1] QIUZI LI, SANKAR DAS SARMA, University of Maryland-College Park — Explicitly taking into account of electron-phonon interaction, we consider the velocity renormalization of the surface state of 3D topological insulator. The velocity renormalization is shown to be strongly dependent on the carrier density of the system. We compare our theoretical calculation to recent experimental data. We further consider the correction to the compressibility arising from electron-phonon coupling, and discuss its implication in experiments.

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