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Impact of Graphene-Metal Interfaces on the Raman and Transport Properties of Graphene Devices¹ ALLEN HSU, MARIO HOFMANN, WENJING FANG, KI KANG KIM, JING KONG, TOMAS PALACIOS, MIT — Graphene is an amazing nanomaterial with many exciting properties and applications. However, due to its low dimensionality, the performance of this material is mainly limited by interfaces and surface properties. One of these interfaces, important for graphene field effect transistors and catalysts supported on graphene membranes, is that between the graphene and a metal layer. In this study, we experimentally examine the impact of various metals on graphene through Raman and Transmission Electron Microscopy. We find that strong graphene-metal interactions have significant impacts on the phonon structure in graphene. Furthermore, we observe changes in our Raman spectra relating to the crystallographic orientation between a metal and graphene.

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