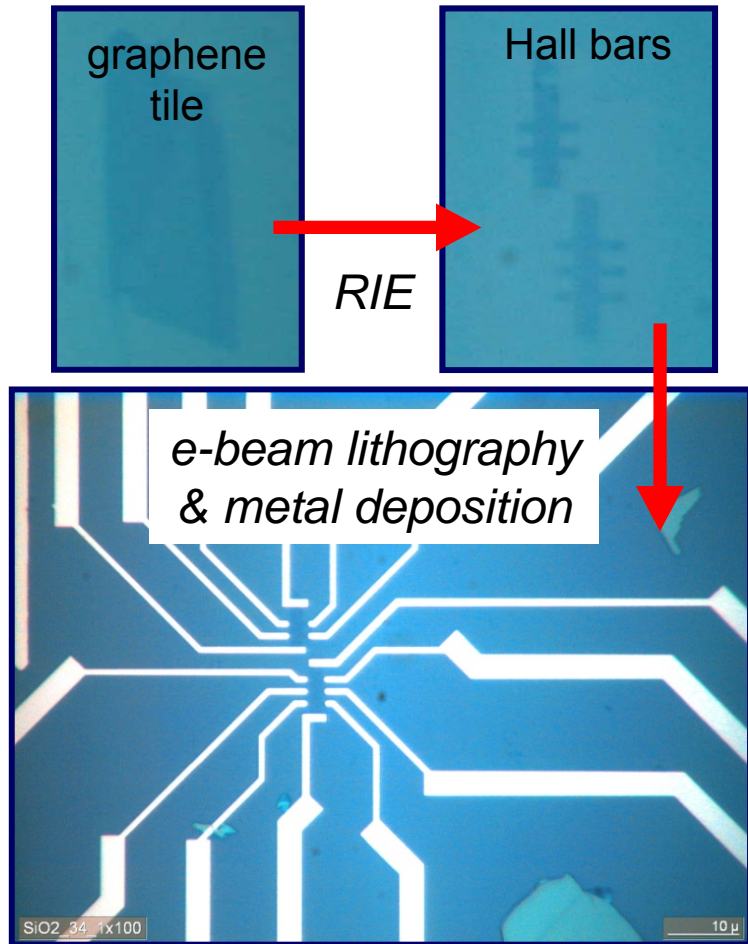


Graphene Field Effect Transistors

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Graphene, one atomic layer of sp²-bonded carbon atoms arranged in a honeycomb lattice, is the latest member of a family of material systems that can host a 2-D electron/hole gas. 2-D carriers can be injected into graphene via field effect with mobilities as high as 20,000cm²/Vs, comparable to the best Ga(In, Al)As-based HEMTs from the III-V semiconductor group. Graphene has a linear band dispersion and have exhibited unusual physical properties such as anomalous integer quantum hall effect and Klein tunneling. In this study, we design and fabricate graphene field effect transistors in Hall bar geometry on mechanically cleaved graphene tiles using RIE and e-beam lithography.

2-DEG transport studies facilitated by graphene field effect transistors fabricated in Hall bar structure