Highly p-doped, Chlorinated Graphene
Tuning the work function for heterostructures and contacts
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Using CVD growth, Cl-plasma treatment, a suite of synchrotron-based x-ray techniques and DFT we fabricated and characterized high quality, heavily p-doped Cl-graphene alone and in vdW heterostacks.

- 2-D nature and periodicity in electronic structure unperturbed, with ~30% Cl$_{ad}$ and > 0.8 eV work function shift.
- Mobility ~1500 cm$^2$/V-s. Sheet resistance reduced by hole doping.
- Cooperativity effect facilitates anomalous bonding mechanism, observed in both the monolayer limit and vdW heterostacks.
- Contact doping in vdW heterostacks by Cl-Graphene, not pristine.
- Single- (metallic) or double-sided (semiconducting, 1.3 eV gap) Cl?