

Chemistry at the graphene edge

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Graphene edges have obtained interest due to their higher reactivity compared to the basal plane allowing functionalization, resulting in a covalent carbon-carbon bond, to alter the electronic and chemical properties without affecting the electron mobility. However, current development is hampered by the inability to characterize covalently functionalized edges. Herein, we provide a bottom-up approach for the characterization by introducing a protected thiol moiety that upon electro-grafting to the edge can be released. This will then allow nucleation of AuNPs on the edge. By performing Atomic force microscopy we expect to observe AuNPs exclusively on the edge and by Surface-Enhanced Raman Spectroscopy we expect to be able to identify our grafted molecule. By doing we hope to have set a first step in the ability to characterize covalently functionalized graphene edges.