

Graphene Nanogap for Coherent Molecular Electronics

T. Löfwander, A. Bergvall, and S. Kubatkin

Dep. of Microtechnology & Nanoscience - MC2, Chalmers University of Technology, SE-41296 Göteborg, Sweden

We present calculations of coherent electron transport through a fulleropyrrolidine terminated single molecule trapped in a graphene nanogap. This is a concrete example of using graphene as a platform for single molecule electronics, where the size mismatch between leads and molecule can be avoided in contrast to the more common metallic nanogap set-up. A back gate voltage can be used to tune the Fermi level in the graphene leads and thereby, under favorable circumstances, facilitate control of the device conductance.