

# Strain engineering in two-dimensional materials

*Saturday, 7 November 2020 14:00 (1 hour)*

Two-dimensional (2D) carrier systems in semiconductors are popular in industrial device applications as well as in fundamental research to study quantum effects at low temperatures. The advent of van-der-Waals (vdW) materials, i.e., 2D materials that can be separated into individual atomic layers by breaking the vdW-bonds, are promising candidates towards using mechanical methods to control the electronic properties.

Elastic strain applied to a 2D material directly affects the atomic lattice of a material by changing the distance of the chemical bonds and the lattice symmetry. Different approaches can be used to introduce strain to a 2D vdW system. These approaches can be divided into two main categories: The first category is using a static strain induced through a patterned substrate, for example. A more advantageous approach, however, is continuously modifying the strain during the measurement, e.g. through the deformation of a substrate in situ.

I will present and introduce possible methods to induce strain and show preliminary measurements on graphene.

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