Flatter graphene, faster electrons: Technique flattens corrugations in graphene layers to improve samples

17 April 2020

Scientists from the Swiss Nanoscience Institute and the Department of Physics at the University of Basel have developed a technique to flatten corrugations in graphene layers. This led to an improved sample quality and is applicable to other two-dimensional materials. The results were recently published in Physical Review Letters.

The technique developed by the team of professor Christian Schönenberger of the Swiss Nanoscience Institute and Department of Physics at the University of Basel pulls the graphene sheet on two opposite sides, thereby flattening and smoothing it. "It is similar to pulling on a piece of crumpled paper that irons out wrinkles and folds," says Dr. Lujun Wang, first author of the study.

Dr. Andreas Baumgartner says, "After this process, the electrons travel effectively faster through the graphene sheet, their mobility increases, demonstrating an improved sample quality."

These findings not only illuminate the electron transport in graphene, but also provide techniques for studying other two-dimensional materials.

The study is published in Physical Review Letters.


Provided by University of Basel