Graphene at fluidic interfaces

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Stellingen

Behorende bij het proefschrift

Graphene at Fluidic Interfaces

1. Behaviour of graphene is dictated by three major factors: the inherent properties of graphene, which have been calculated decades ago and now are well understood; the electronic properties of the underlying substrate, whose effect on graphene can also be theoretically assessed and to some extent controlled experimentally; and by the variety of environmental factors, which cannot be quantified and introduce unpredictable and undeterminable changes in graphene. (Chapter 1 of this thesis).
2. A droplet of water outperforms most ultra-smooth and precision-made solid substrates allowing for low strain and doping and high charge carrier mobilities in graphene (Chapter 2 and Chapter 3 of this thesis).
3. The major challenge in harnessing the best out of the properties of 2D materials is maintaining their atomic flatness and inherent morphology, and the adaptable and perfectly uniform nature of liquid surfaces has the unique capabilities to achieve it at large scale (Chapter 3 of this thesis).
4. Nature does astonishing things by creatively using water in its different forms; similarly, using ice, bubbles and humidity as parts of experimental design can yield new efficient solutions (Chapter 4 and Chapter 5 of this thesis).
5. Wetting properties of graphene do not characterize its affinity to individual water molecules (Chapter 6 of this thesis).
6. Sometimes standard deviations can be more informative than the absolute values (Chapter 3 of this thesis).
7. There are no negative results – every graph, every measured number, fluctuations and inconsistencies are messages from atoms and molecules, and how well one is able to decode them, to put them in a big picture and to find the best use of them will determine the impact of one's research.
8. If scientists from different areas read each other's journals, a good number of existent dilemmas would have been already solved.
9. For a PhD long hours in the lab are essential, but the long hours of thinking and contemplating are transformational.
10. If you are not Alex Honnold you can enjoy as many falls as you want.