



Seminarankündigung

Montag, 14. Juli 2014

14:00 Uhr

WSI, Seminarraum S 101

“2D crystal semiconductor materials and devices: Opportunities and challenges”

Abstract: As electronic devices are scaled to their size and speed limits, there is a certain pessimism about an impending 'end' symbolized by Moore's law. In the talk, I will argue and make a case that this crossroad offers the greatest opportunity for inevitable breakthroughs that will rejuvenate the field. I will review research results in the field, and those from our group, that are driven by this belief. Material science and physics are the drivers of new devices.

In that light I will discuss the particular case of 2D crystals such as graphene, the transition metal dichalcogenides such as MoS₂ and various heterostructures.

- Progress, and challenges in growth and control will be briefly discussed.

- I will discuss the currently understood electron transport properties in these materials in some detail, and point out unanswered questions.

- These materials demonstrate some new physical properties that could be potentially exploited for nanoelectronic or photonic devices. Towards that end, I will also present results on a few new devices that we have been working on recently.

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