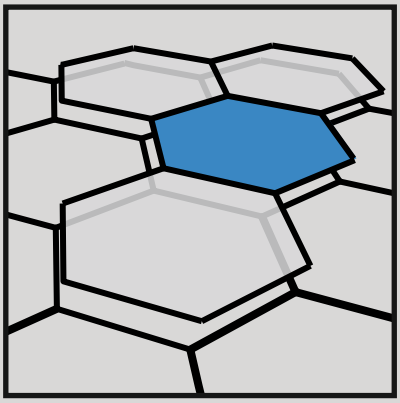

Aachen Graphene & 2D-Materials Center

Aachen-Graphene Flagship-Seminar

January 16, 2020

at the Physikzentrum Melaten

14:00 - 15:00 h in 28D001

(Physikhörsaal)

The Graphene Revolution: *From Transistors to Synthetic Cells*

Tomás Palacios

Massachusetts Institute of Technology (MIT)

Two-dimensional materials enjoy a vast array of unique properties, from extreme thinness and mechanical flexibility to amazing quantum physics. These properties will have a tremendous impact in future electronics by enabling large area, high speed, ubiquitous sensing and processing. This talk will review some of the recent progress on the use of graphene and other two-dimensional materials in these applications. In particular, it will discuss state-of-the-art MoS_2 and WSe_2 transistors for ultra-low power CMOS circuits [1-2], graphene-based chemical [3] and infrared sensors [4], large area devices for energy harvesting [5], and a new generation of micro-systems that probe the limits of electronics.

[1] NanoLetters, 16 (2016) 7798-7806.; [2] NanoLetters, 15 (2015) 4928-4934; [3] Applied Materials and Interfaces, 10 (2018) 16169-16176. [4] Heterogeneous Integration of 2D Materials and Devices on a Si Platform, Chapter in Beyond CMOS Technologies for Next Generation Computer Design (2019), Springer. [5] Nature (2019) https://doi.org/10.1038/s41586-019-0892-1

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