

Graphene in Microelectronics - It's not all about Mobility!

Max Lemme

University of Siegen, Graphene-based Nanotechnology

Hölderlinstr. 3, 57076 Siegen, Germany
max.lemme@uni-siegen.de

This talk will discuss the opportunities and challenges for applications of graphene and 2D materials beyond field effect transistors. First, hot electron transistors with graphene components will be introduced that are projected to allow THz operation [1], [2]. Next, I will present examples for graphene / silicon and molybdenum / silicon heterojunctions as photodetectors [3]. Finally, the low mass of graphene makes it interesting for nanoelectromechanical systems. This will be discussed using the example of graphene membrane based piezoresistive pressure sensors [4], [5]. These potential future devices can be categorized as “More-than-Moore” applications, which add functionality to the existing silicon CMOS technology.

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