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Title:
Atomically precise graphene nanoribbons for logic devices

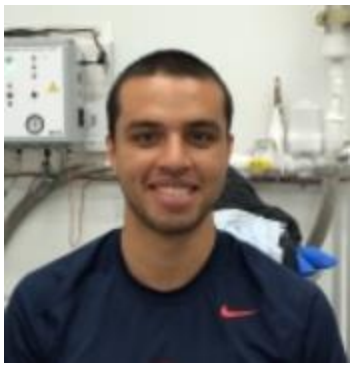
Juan Pablo Llinás

Electrical Engineering and Computer Sciences Dept.,
University of California, Berkeley, USA

Abstract:

It is now possible to grow graphene nanoribbons with atomically precision by employing on-surface organic synthesis techniques. Bottom-up synthesized graphene nanoribbons have promising electronic properties for high performance field effect transistors (FETs) and ultra-low power devices such as tunneling FETs. However, the short length and wide band gap of GNRs have prevented the fabrication of devices with the expected performance and switching behavior. In this talk, I will discuss our progress in integrating bottom-up synthesized graphene nanoribbons into devices. I will show our results on high on-current and high on-off ratio FETs with a 9-atom wide graphene nanoribbon as the channel material. Finally, I will discuss how we can use graphene nanoribbon heterostructures to design a low-voltage switch.

Biography:



Juan Pablo Llinás is a PhD candidate in the Department of Electrical Engineering and Computer Sciences at UC Berkeley, where he is supported by the NSF Graduate Research Fellowship and the Berkeley Fellowship for Graduate Study.

He received his B.S. in Electrical Engineering from University of Illinois at Urbana-Champaign in 2014.

Juan Pablo investigates the electrical transport and optical properties of self-assembled graphene nanoribbons and graphene nanoribbon heterojunctions via device measurements and optical spectroscopy.