



Einladung

Es spricht: **Dr. Marcelo Davanco**

NIST, National Institute of Standards and Technology, USA

Zeit: **Dienstag, 07. Februar 2016, 14:00 Uhr**

Ort: **Technische Universität Berlin
Institut für Festkörperphysik
Hardenbergstraße 36, 10623 Berlin
Raum EW 561**

Thema: **„A heterogeneous III-V / Si₃N₄ quantum photonic integration platform“**

Abstract:

Photonic integration is an enabling technology for photonic quantum science, offering greater scalability, stability, and functionality than traditional bulk optics. Here, we describe a scalable, heterogeneous III-V/silicon integration platform to produce Si₃N₄ photonic circuits incorporating GaAs-based nanophotonic devices containing self-assembled InAs/GaAs quantum dots. We demonstrate pure single-photon emission from individual quantum dots in GaAs waveguides and cavities - where strong control of spontaneous emission rate is observed - directly launched into Si₃N₄ waveguides with > 90 % efficiency through evanescent coupling. To date, InAs/GaAs quantum dots constitute the most promising solid state triggered single-photon sources, offering bright, pure and indistinguishable emission that can be electrically and optically controlled. Si₃N₄ waveguides offer low-loss propagation, tailorable dispersion and high Kerr nonlinearities, desirable for linear and nonlinear optical signal processing down to the quantum level. We combine these two in an integration platform that will enable a new class of scalable, efficient and versatile integrated quantum photonic devices.

Gäste sind herzlich willkommen!

Prof. Dr. S. Reitzenstein