



Innsbruck Physics Colloquium

Single-photon emitters in atomically thin materials

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Graphene is known as a prototypical two-dimensional material with unique physical properties. However, the difficulty of creating an optical band gap stimulated the search for other monolayer materials.

Atomically thin transition metal dichalcogenides serve as a promising new material class for opto-electronics. In contrast to thicker crystals, monolayers of MoS_2 , WS_2 , MoSe_2 , and WSe_2 exhibit prominent photoluminescence at room temperature. Recently, we have discovered bright and stable single-photon emitters in single layers of WSe_2 , which renders atomically thin semiconductors also interesting for quantum optics. In my talk, I will show that these quantum light sources are strain-induced and demonstrate deterministic positioning of the emitters on the nanoscale. Furthermore, I will present single-photon emission from the layered monochalcogenide semiconductor GaSe and provide evidence that the incorporated non-classical light sources are also strain-induced. Finally, I will demonstrate that single-photons from GaSe emitters can be routed in waveguides on a photonic chip.

Colloquium: Tuesday, 17.04.2018
17:15 h in lecture hall C

DK-ALM Pre-Talk: 16:30 h

Maximilian Prilmüller

Quantum Dots as sources of nonclassical light

Snacks will be provided in between the pre-talk and the colloquium.

