Colloidal 2D Semiconductor Nanoplatelets and Nanosheets:
A Chemical Approach to (Room-Temperature) Single Photon Emitters

Colloidal two-dimensional (2D) semiconductor nanomaterials, so-called nanosheets or nanoplatelets, are only a few atomic layers thick and exhibit highly promising optoelectronic properties that are chemically tunable between UV-vis up to technologically relevant infrared wavelengths. [1-4] 2D semiconductors are strongly quantum-confined in their thickness dimension, which leads to a high exciton binding energies and narrow absorption and emission in the structures. The robust emission properties make them perfect candidates for single photon emission single photon emission which plays a key role in highly topical photonic quantum technologies. [5]
I will present recent results on our chemistry-based approach toward photonic quantum technologies covering telecommunication and optical wavelengths by tailoring the optoelectronic properties of 2D semiconductors.

References:
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