

MSc Thesis & BSc projects:

Molecules on 2D materials

lay the foundation for the new generation of organic-functionalized devices.

Two-dimensional (2D) materials, particularly transition metal dichalcogenides (TMDs), have gained significant interest for their unique properties and potential applications in electronics and photonics. However, synthesizing defect-free 2D TMD materials reliably remains a major challenge. This is in stark contrast to the well-established field of organics. Molecules with tailored electronic and optical properties can be controllably synthesized can exhibit photo-, electron-, electric-, chemical- and/or temperature-induced conformational changes.

Combining organics with 2D TMDs holds promise for creating even more advanced, multifunctional flexible devices, requiring a deep understanding of the organic-2D TMD interface.

The proposed BSc. or MSc. projects aim at characterising the energy level alignment at the molecular/TMD interface by means of state-of-the-art photoemission and microscopy methods, such as Photoemission Orbital Tomography and Scanning Tunnelling Microscopy.

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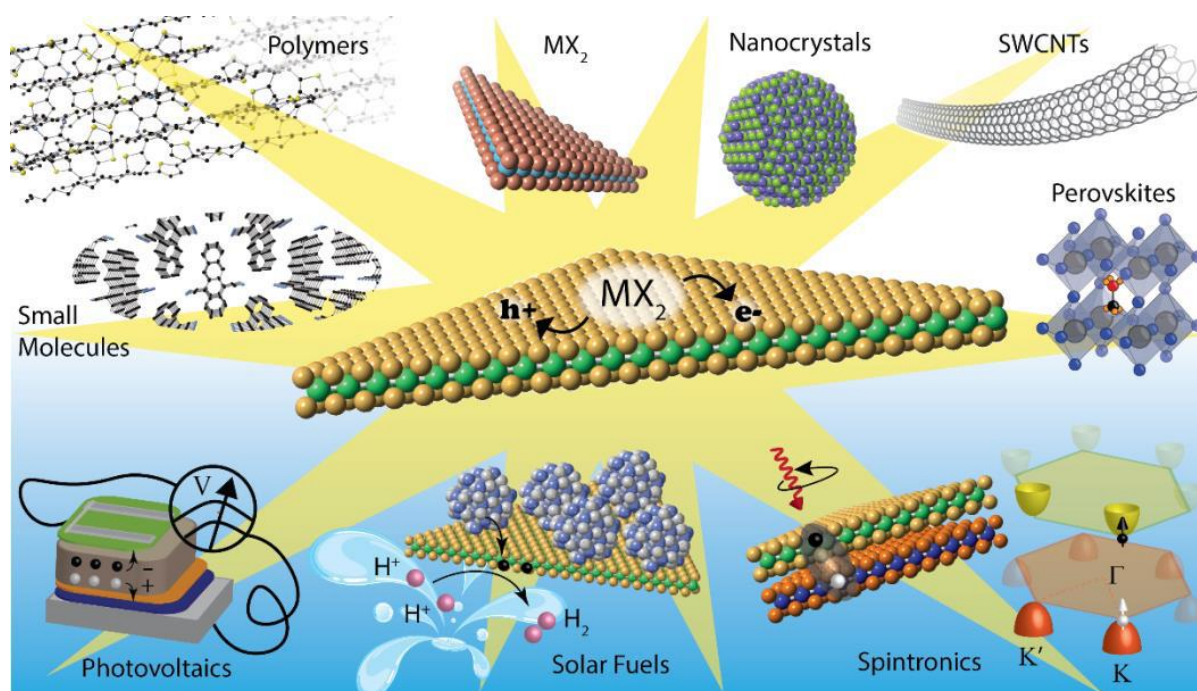


Image taken from: D. B. Sulas-Kern et al. *Energy & Environmental Science* **13**, 2684 (2020).