

## **The moiré exciton binding energy**

2D materials, such as graphene and transition metal dichalcogenides, show unique electronic and optical properties. Particularly fascinating in these systems, is the physics of the excitons which is controlled by the Coulomb interaction. Recent studies showed that by vertically stacking two monolayers (same or different) with a twist angle creates an artificial moiré superlattice. This superlattice creates a periodic potential that affects the excitons of the bilayer giving rise to a modification of their features. Moreover, the moiré potential can be tuned by strain, electric field and dielectric engineering to tailor exciton properties of the different kind of bilayers. To be able to exploit all the possible technological potential and to design future experiments on moiré bilayers, microscopic insights into moiré excitons are needed. In particular, one of the physical quantities that provide important information on the strength and lifetime of these excitons is the binding energy, which we will calculate in this project for suitably tailored moiré systems.