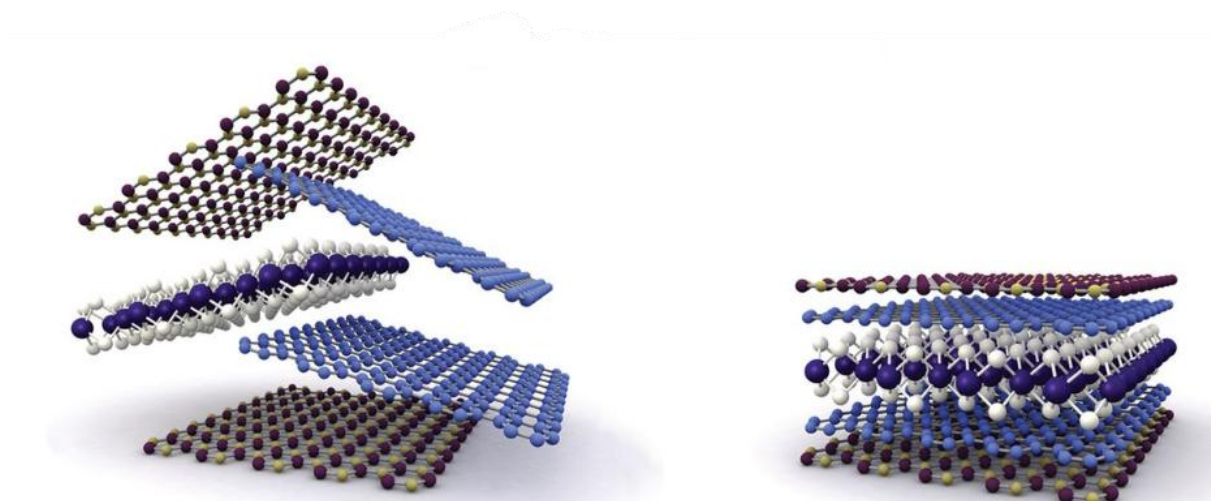


Toward a quantum material factory

Context: Quantum materials shine by their exciting emergent properties: high-temperature superconductivity or topological order to name a few. A unifying feature is the presence of strong electronic correlations. That defining aspect makes quantum materials challenging to tackle with analytical calculations or numerical simulations. An empirical approach remains necessary.

Goal: Our long-term goal is to build a platform where quantum materials can be fabricated and measured with a high throughput. A large data base can then be built and used for the training of an artificial intelligence. We will focus on van der Waals heterostructures, obtained by stacking atomically thin crystals. In the last few years, this platform has emerged as a cornucopia of quantum materials (see Nat. Phys. **17**, 155–163 (2021) for a review).



Schematic representation of a van der Waals heterostructure.

Internship: The intern will participate to the elaboration of the platform, at an early stage of the project. This will involve extensive work in a clean room, together with optical characterization of the sample.

Laboratory: The Institut des nanosciences de Paris (INSP) is part of Sorbonne Université and located on the Jussieu campus (Paris 5).

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Dates: Second semester of 2026-2027. Possibility to start a PhD in 2028.

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