

## Open positions for the Marie Skłodowska-Curie fellows at the Laboratory of organic matter physics

The Laboratory of organic matter physics focuses on charge transport properties of thin organic semiconductor (OS) layers and blends between twodimensional materials and OS. An increasingly important activity is concentrated around electronic properties of van der Waals heterostructures. The available equipment includes a complete system for time-resolved photoconductivity measurements, current-voltage measurements, thin-film transistor fabrication facility with 1- $\mu\text{m}$ -resolution laser-based photolithography in a clean room, and two atomic force microscopes. A recently installed system for manipulation of flakes of 2D materials is also available. Access to transmission and scanning electron microscopy and photoelectron spectroscopy is arranged.

### **Topic:** The role of Moiré periodicity on electronic properties of van der Waals heterostructures

Heterostructures between 2D materials exhibit an additional in-plane periodicity of the surface potential due to the formation of the Moiré pattern that arises as a consequence of lattice mismatch and/or rotation of the unit cells of the reciprocal space of the two neighboring 2D layers. This variation is bound to affect the in-plane charge transport but may affect tunneling of the electrons across the heterostructure. The successful candidate will perform a systematic study of charge transport in van der Waals heterostructures that he/she will fabricate in-house. The experiments will include in-plane and perpendicular transport measurement as well as local-probe experiments including conductive atomic force microscopy and scanning tunneling microscopy.

#### Scientific requirements:

Ph.D. in experimental condensed matter physics. Experience with scanning probe techniques on 2D materials is a must. Preference will be given to the candidates with experience in 2D material manipulation

#### Contact person

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