



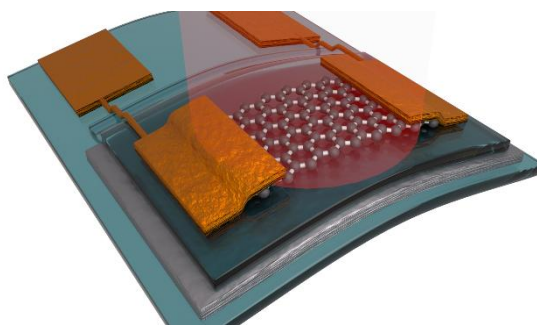
PhD Position: “Optoelectronics of 2D Materials”

SUMMARY:

The Department of Molecular Sciences and Nanosystems at Ca' Foscari University invites applications for a PhD position in the 41st cycle focused on the optoelectronics of two-dimensional (2D) materials. The PhD candidate will explore novel physics and properties of 2D materials and their heterostructures to develop next-generation optoelectronic applications.

RESEARCH FOCUS:

The research will focus on investigating the optoelectronic properties of low-dimensional materials, particularly 2D materials and their heterostructures. These materials exhibit unique optical and electronic characteristics due to quantum confinement effects, enhanced light-matter interactions, and tunable band structures. The candidate will use mechanical exfoliation and chemical vapor deposition (CVD) techniques to synthesize high-quality 2D materials. Advanced microscopy and spectroscopy methods will be employed to analyze their structural, optical, and electronic properties. The candidate will integrate these materials onto various substrates, both flexible and rigid, to develop innovative device architectures. Additionally, they will utilize state-of-the-art nanofabrication techniques, such as lithography and etching, to pattern and engineer such devices. Finally, the candidate will perform optoelectronic characterization using advanced measurement setups, aiming to optimize the device performance and unlock new functionalities for next-generation information technologies.



REQUIREMENTS:

- Master's degree in Physics, Engineering, Materials Science, Nanotechnology, or a related field.
- Background in condensed matter physics, nanotechnology, electronics, and optoelectronics.
- Strong teamwork skills and a passion for interdisciplinary research and innovation.

OPPORTUNITIES

- Hands-on experience in:
 - ✓ Mechanical exfoliation of crystals, transfer techniques, and sample preparation.
 - ✓ Material characterization *via* tools like optical microscopy, Raman, and photoluminescence.
 - ✓ Nanofabrication techniques, including lithography, etching, and contact evaporation.
 - ✓ Transport and optoelectronic measurement techniques.
- A six-month research stay at a leading international institution.

Join us in advancing technology that defines the future of high-performance, energy-efficient optoelectronic devices!