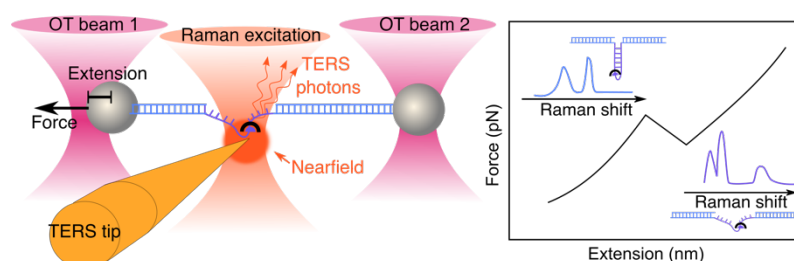


Open PhD Student Position

We are seeking PhD candidates for a fully funded 3-year FPI fellowship associated with the project entitled “*Multidimensional Approach to Nanochemistry: Exploring Carbon Nanotubes, 2D materials and Single-molecule Supramolecular Chemistry*” (Ref: PID2023-152267NB-100) at IMDEA nanociencia in Madrid (<https://www.nanociencia.imdea.org/es/>).

About the Project

The PhD project aims to develop a hybrid instrument that combines optical tweezers (OT) and tip-enhanced Raman spectroscopy (TERS). OT will allow real-time measurement and manipulation of individual synthetic (supra)molecular systems, while TERS will reveal inter- and intra-molecular chemical interactions at the single-molecule level. This unique setup will shed light on the intricate relation between mechanical, conformational and non-covalent chemical properties that govern the operation of (supra)molecular systems with single-molecule sensitivity.



This project is a collaboration between the Molecular Motors Manipulation (PI Dr. Borja Ibarra) and the Chemistry of Low Dimensional Materials (PI Dr. Emilio Pérez) labs. The PhD candidate will gain multidisciplinary training, including: (i) physics instrumentation and optics, (ii) chemistry and biochemistry lab work with (supra)molecular systems, and (iii) data processing and analysis of complex experimental results.

Applicant Requirements

- BSc and MsC degree in Physics, Chemistry or related field.
- Excellent oral and written communication skills in English ($\geq B2$).
- Experience with: lasers, optics, vibrational spectroscopy (TERS or SERS), supramolecular systems, single-molecule techniques and/or programming will be positively evaluated.

How to Apply

Please send your application to Emilio Pérez (emilio.perez@imdea.org) and Natalia Martín Sabanés (natalia.martin@imdea.org) including:

- A cover letter (max. 1 page) detailing motivation and interest in the position
- A CV, including transcripts for your BSc and MSc degrees
- Contact information (email) for one or two academic references

About IMDEA Nanociencia

IMDEA Nanoscience Institute, founded in 2006 by the Community of Madrid, is an interdisciplinary research center focused on fundamental nanoscience and nanotechnology applications in connection with innovative industries. Recognized as a "Severo Ochoa" Centre of Excellence since 2017, it is located within the UAM-CSIC Cantoblanco Campus of International Excellence, a globally competitive research environment.

More information

- Related publications: *Nat Commun* **9**, 4512 (2018). (<https://doi.org/10.1038/s41467-018-06905-8>), ChemRxiv. 2024; (doi:10.26434/chemrxiv-2024-w3twb)
- Chemistry of low dimensional materials group: <https://nanociencia.imdea.org/chemistry-of-low-dimensional-materials/home>
- Molecular motors Manipulation group: <https://nanociencia.imdea.org/molecular-motors-manipulations-lab/group-home>