

The Nanoscience Cooperative Research Center, CIC nanoGUNE, located in Donostia / San Sebastian, Basque Country (Spain), is currently looking for a

**Master Student**  
to work on  
**Quantitative Liquid-Phase Transmission Electron Microscopy**

The Electron Microscopy group is currently looking for a Graduate Student who is interested in performing a Master and a subsequent PhD thesis in the area of the Quantitative Liquid-Phase Transmission Electron Microscopy.

Liquid-phase transmission electron microscopy (LP-TEM) is an emerging imaging technique that enables inducing and observing nanoscale dynamics in liquid environment in real-time and at nanometer scale resolution. Even though LP-TEM has provided unique insights across many research areas, comprising material synthesis, (electro-)catalysis, energy storage & medicine, its potential remained limited due to a poor understanding of fundamental aspects related to mass transport and beam effects. In the recent years, a comprehensive infrastructure was implemented at nanoGUNE combining theoretic and experimental knowledge. This has led the way to advancing LP-TEM into a more quantitative technique and renders nanoGUNE a unique environment to delve into the nanoworld and investigate material's properties. In order to explore these opportunities, we are seeking a motivated graduate student with a solid background in (nano-) chemistry and physics, and enthusiasm to work on an interdisciplinary topic involving theoretic and experimental task. Experience in numerical simulations, programming, electron microscopy and/or microfluidics is beneficial.

The initial **content** of the work will necessarily comprise the following and will be refined upon progression:

- Extending numeric models (in Matlab/COMSOL) to compute beam-induced chemistry (radiolysis) in realistic irradiation scenarios;
- Adapting these models for specific experimental scenarios in order to support/guide experimental measurements;
- Designing and fabricating experimental setups;
- Planning and conducting quantitative LP-TEM experiments addressing relevant research questions from diverse fields of materials research (see above);
- Analyzing and interpreting data;
- Writing papers/reports and presenting the results.

The ultimate **goal** for this activity is to develop comprehensive workflows for the

quantitative study of nanoscale dynamics. The project will be run in tight collaboration with other group members supporting the theoretical and experimental segments.

Candidates should **apply** by completing the **form below** and attaching the following documents:

1. A complete CV and academic record
  2. A motivation letter is also recommended
- The deadline for applications is 29/02/2024.

*NOTES:*

*(i) All applicants will receive an answer after the end of the selection process; but please note that due to the large number of submissions that are expected, we cannot provide individual feedback.*

*(ii) Additional information about nanoGUNE's commitment towards HR excellence in Research and Gender Equality are available on our website.*

*(iii) We encourage you to subscribe to our HR mailing list to receive information related to nanoGUNE's open positions and open calls for different training and talent attraction programs.*