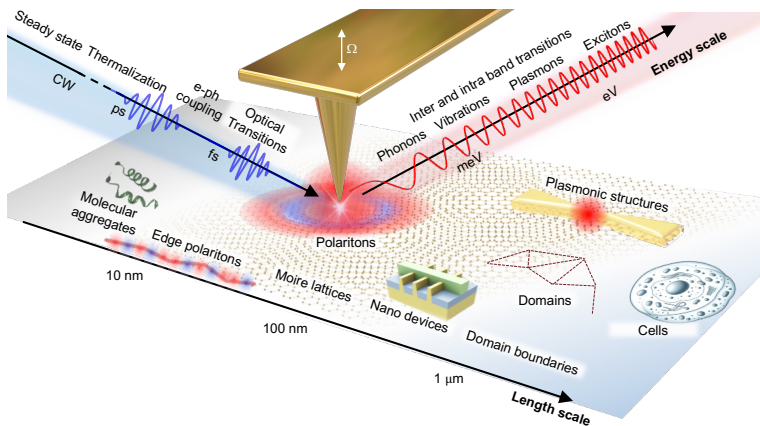




PhD Position in Infrared Nanospectroscopy

The [Nanooptics Group at CIC nanoGUNE](#) (San Sebastian, Spain) is looking for highly motivated pre-doctoral researchers to contribute to the development of next-generation infrared nanospectroscopy instrumentation and methodologies. The PhD position is part of a joint project with [attocube systems GmbH](#), a world-leading company in near-field optical microscopy and nanospectroscopy.



The Nanooptics Group pioneered scattering-type scanning near-field optical microscopy (s-SNOM) and Fourier-transform infrared nanospectroscopy (nano-FTIR), establishing key scientific and technological foundations for modern infrared nanospectroscopy. These techniques enable imaging and spectroscopy at visible, infrared, and terahertz frequencies with spatial resolutions 100 to 1000 times beyond the diffraction limit of conventional optical methods. Building on these advances, the

group has demonstrated their broad potential across science and technology, including nanoscale conductivity mapping in electronic devices, chemical identification of organic and inorganic materials, bioimaging, and the investigation of exotic light waves in 2D and quantum materials ([Nat. Rev. Mater. 10, 285 \(2025\)](#)).

The successful candidate will work with a next-generation nanospectroscopy platform capable of performing both s-SNOM and photothermal expansion (PTE) measurements under identical experimental conditions, enabling direct comparison and correlated nanoscale analysis.

The project includes the following tasks:

1. Testing, evaluating, and optimizing the microscope system
2. Comparing s-SNOM and PTE nanospectroscopy techniques
3. Applying these techniques to research problems in one of the following areas, depending on the candidate's background and interests:
 - Polaritons in 2D materials and vibrational strong coupling at the nanoscale
 - Quantitative carrier mapping in semiconductors
 - Chemical nano-imaging of polymers and biological samples

We are looking for motivated candidates with:

- Master degree in Physics, Engineering, Materials Science, Physical Chemistry, or a related
- Strong interest in nano-optics, nanophotonics, spectroscopy, scanning probe microscopy
- Programming experience, including Python
- Hands-on laboratory experience
- Good spoken and written English

We offer:

- A PhD program in a leading international research institute
- Access to unique state-of-the-art nanospectroscopy instrumentation
- A dynamic and international research environment
- Close collaboration between academia and industry

Please apply with the following documents at [PhD IR nanospectroscopy](#) before 14.6.2026:

1. Complete CV and academic transcripts
2. Motivation letter (maximum 1 page) and reference letters in a single pdf file
3. Brief summary of previous research experience or Master's thesis (maximum 1 page)