

The spaser (also known as a plasmonic nanolaser) is an active nanosystem composed of a plasmonic metal core and a gain medium which generates coherent light whose intensity is a hundred times more than the intensity of commonly used dyes. This is due to the unique combination of intense near-monochromatic stimulated emission and strongly enhanced absorption, free of optical saturation. Spasers show enormous potential in numerous applications in science, industry and, especially, in healthcare because of their nanoscopic sizes. Especially biomedical applications may strongly benefit from a properly adjusted spaser system.

This master project is aimed at the development of wet chemical synthetic routes to create spasers that emit in the near IR-region. Spasers will be synthesized and characterized by a variety of different physicochemical techniques including electron microscopy, UV-Vis spectroscopy, fluorescence spectroscopy, Raman spectroscopy, XRD and others. The Master project is at the intersection of inorganic, physical, colloidal chemistry, as well as optics and laser physics and combines experimental work in a chemical laboratory with various investigation methods of the obtained spasers. The work will be conducted in the Nanomaterials group at CIC nanoGUNE.

Application:

If you are a master student with interest for cutting edge research in nanomaterials, please **contact** the scientist in charge: **Roman Parkhomenko** (r.parkhomenko@nanogune.eu).

To apply for a master scholarship fill in the form below and follow the instructions and recommendations of the general call open until 30 June 2021.

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.

