Title: STM in ferromagnetic spin-triplet superconductors

Tutores: Isabel Guillamón (<u>Isabel.guillamon@uam.es</u>) and Hermann Suderow (<u>Hermann.suderow@uam.es</u>)

Departamento de Física de la Materia Condensada Módulo 03

Web: www.lbtuam.es

Short description of the project:

Unlike other conventional and unconventional superconductors, spin-triplet superconductors are much more resilient to high magnetic fields [1]. These materials present very exotic properties including a very large and anisotropic upper critical field and intrinsic topological superconductivity, being of great interest in quantum computing. So far, there are only a few compounds which are candidates to show spin triplet superconductivity such as URhGe and UCoGe [2,3]. We propose here to study in detail the superconducting properties of these materials using Scanning Tunneling Microscopy at temperatures below 100 mK and magnetic fields up to 22 T. This work may include collaboration with high magnetic field facilities such as the European Magnetic Field Laboratory (EMFL).

[1] S. Ran et al., Science 365, 684-687 (2019).

- [2] D. Aoki et al., Nature 413, 613–616 (2001).
- [3] N. Huy et al., Phys. Rev. Lett. 99, 067006 (2007).