

## Virtual lab tour through the FELIX laboratory

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At the FELIX Laboratory we develop and operate four lasers FELIX-1, FELIX-2, FELICE and FLARE. Each produce their own range of wavelengths, and together they provide a tuning range between 3 and 1500  $\mu\text{m}$ . Additionally, the FELICE (Free Electron Laser for Intra-Cavity Experiments) beamline is dedicated to intra-cavity experiments and provides a photon flux that is up to 100 times higher compared to the conventional user stations.

Typical research projects at the FELIX Laboratory include systems such as (bio)molecules, clusters and complexes as well as semiconductors, metals and magnetic materials. The information obtained may serve as a fingerprint to identify species, determine molecular structure, probe quantum coherence, flip spins, or identify chemical bonds.

Since 2019, scientists can also place matter in the free-electron lasers and simultaneously expose it to a high magnetic field provided by the High Field Magnet Laboratory (HFML). At HFML static fields up to 37.5 Tesla are available, and a 45 Tesla hybrid magnet is under development.

In this talk a brief overview of the research capabilities using our FELs will be given. Selected experimental techniques and research results will be highlighted.