

# **WP13 EuPRAXIA electron and photon diagnostics**

**Monday, 12 June 2023 - Tuesday, 13 June 2023**

**EPFL**

## **Scientific Programme**

The EuPRAXIA project is an ambitious endeavor focused on constructing a state-of-the-art free electron laser (FEL) that operates at X-ray wavelengths, utilizing a cutting-edge plasma wakefield accelerator (PWFA) as the primary driving mechanism. Currently, the project is in its preparatory phase, during which we are concentrating on the development of sophisticated electron and X-ray diagnostic tools essential for the efficient and accurate operation of the system.

To facilitate the design process and foster innovation, we are organizing a specialized workshop with the objective of assembling a diverse range of ideas and expertise related to diagnostic technologies for both electron and X-ray beams. By bringing together leading scientists from around the world, this workshop aims to stimulate fruitful discussions that will contribute to the development of novel and effective beam instrumentation.

The collective insights and innovative proposals generated from the workshop will be thoroughly analyzed and consolidated to form a comprehensive diagnostics beamline tailored to the unique requirements of the EuPRAXIA project. This work will subsequently be incorporated into the Technical Design Report (TDR) for EuPRAXIA, serving as a crucial component of the project's overall design and implementation strategy.

After the two-day workshop, you will have the possibility to visit the Paul Scherrer Institute (PSI), located 200 km north-east of Lausanne. PSI is the biggest national research institute in Switzerland, and it is host to SwissFEL, an X-ray free electron laser driven by a radio-frequency accelerator. This state-of-the art user facility can provide inspiration for how to design and run EuPRAXIA.

In conclusion, the EuPRAXIA project's preparatory phase plays a vital role in laying the foundation for the successful realization of a groundbreaking free electron laser system, driven by a plasma wakefield accelerator. The workshop, focused on diagnostic technologies, will be instrumental in shaping the future of this cutting-edge scientific endeavor.