

The European ERL Roadmap

Monday, 3 October 2022 09:50 (40 minutes)

Following the European Strategy process in 2019, five Roadmap Panels were set up to prepare the technologies needed for future accelerators and colliders: high-field magnets, SRF, muon colliders, plasma wakefield accelerators and Energy Recovery Linacs (ERLs). The ERL Roadmap Panel, consisting of ERL experts from around the world, first developed a comprehensive overview of current and future ERLs. From this a gap analysis was carried out to evaluate the necessary R&D, which led to the development of the Roadmap. The European ERL Roadmap focused on three main aspects: 1) the continuation and development of facility programs for which no additional funds are needed (S-DALINAC in Darmstadt and MESA in Mainz); 2) technology development for room-temperature HOM damping and twin-axis SRF cavities; 3) the timely upgrade of bERLinPro for 100mA current, and 4) the construction of PERLE at Orsay as a dedicated 10MW beam-power multi-turn facility. The Roadmap also describes a vision for future energy-frontier electron-positron and electron-hadron colliders, and describes a high-quality ERL program for 4.4K SRF technology at high Q0. The presentation will address the ERL Roadmap process and results in detail.

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Session Classification: Welcome and Introduction

Track Classification: Welcome and Introduction