

The EAJADE Project

Europe-America-Japan Accelerator Development and Exchange Programme –
a Marie Skłodowska-Curie Staff Exchanges action, funded by the EU under Horizon-Europe

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Scope of the project:

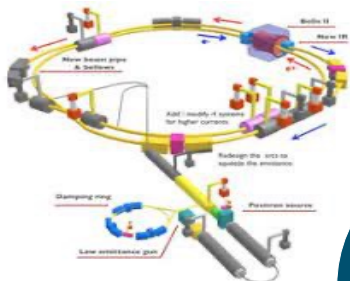
EAJADE addresses the need of exchange of ideas on R&D and implementation of future accelerators for particle physics, in particular for a future Higgs factory, on generic technical developments, and on investigations into new and sustainable technologies.

EAJADE does so by exchanging accelerator scientists and experts between Europe, America (Canada and USA), and Japan.

The planned exchange of staff of leading European laboratories and universities with several prominent American and Japanese partners will focus on the most critical subjects of the design, R&D and prototyping of future accelerator facilities.

Deliverables in WP 1:

- Report on requirements for long-term maintenance of stably focused beams at the nanometer level in ATF3 at KEK.
- Overview report on positron production performance and studies at SuperKEKB/FACET-II/JLAB.
- Report on SuperKEKB luminosity performance and optimisation.
- Report on the operational studies and experiences with SC RF linacs and ERLs, including beam dynamics modelling.



The SuperKEKB collider is one of the machines studied in WP1 of EAJADE.

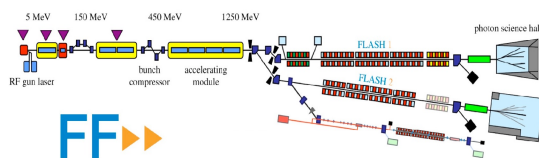
WP 1: R&D&I at currently operating state-of-the-art facilities

WP 5: Potential early applications of novel and advanced technologies

Deliverables in WP 5:

- Report on PWA module design for high repetition rate and high average power acceleration.
- Report on simulation code development and the role of ML-based optimization techniques for PWA simulations.
- Report on concepts for e^+ acceleration in PWA-based colliders and on active plasma lenses for positron capturing.

Schematic layout of the FLASHForward facility at DESY, a crucial ingredient for beam-driven PWA R&D.



WP 4: Sustainable technologies for scientific facilities

WP 3: Special technologies, devices, and system performance

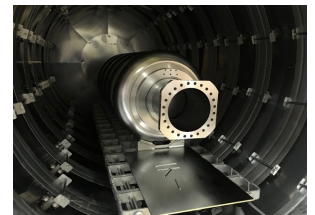
Deliverables in WP 4:

- Organisation of a series of dedicated sessions on sustainable accelerator design and technologies at workshops on ILC, CLIC and FCC-ee.
- Summary report on sustainability efforts in the context of a "green" accelerator facility.

Deliverables in WP 2:

- Industrial manufacturing optimization and cost reduction analysis for RF systems.
- Report on sustainability issues (with WP 4).
- Report on cryomodule and cavity (SRF and NCRF) production procedures and experiences.

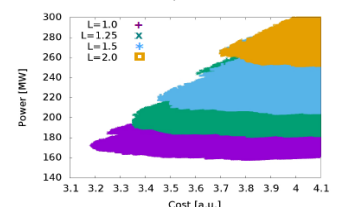
The study of heat treatment effects of niobium cavities is a part of the WP 2 efforts.



Deliverables in WP 3:

- Optimized parameters for Higgs factories including polarization studies.
- Report on luminosity performance and margins for the Higgs factory concepts.

WP 4 will study, among other things, the correlation of cost and power in future colliders.



EAJADE in numbers and measures:

- EAJADE proceeds by seconding European researchers to associated academic and industry partners worldwide. All in all, 304 months of secondments are available to the 8 beneficiaries (see below). The project duration is from 3/2023 to 2/2027.
- Various measures and reports from WP 6 "Management" monitor the success of the action: a dissemination and communication plan, a data management plan (DMP) and report on the FAIR and open science practices in the project, report on training actions of doctoral students during secondments, and a report on industry secondment experience.



Co-funded by the
European Union

This work was partially supported by the European Union's Horizon Europe Marie Skłodowska-Curie Staff Exchanges programme under grant agreement no. 101086276.

Beneficiaries:



Associated academic and industry partners:

