

CERN and SCK-CEN collaboration

Scope overview

The framework is settled in the collaboration agreement CO-90-11-2876-00 (ALX/4039662)¹

- collaborating in common fields of interest, e.g. R&D of linacs and targetry (not limiting)
- signed 2013, valid indefinite (unless one party quits)

Collaboration contacts: **Frank Gerigk, Jan Uythoven** (CERN), **Adrian Fabich, Dirk Vandeplassche** (SCK-CEN)

A scope review meeting at CERN is envisaged for 27 February.

Location: CERN, 40-2-A01, 9 :00 – 9 30, 14 :00 – 16 :00 (plenary meetings); 9:30 – 12:00 topical meetings, see <https://indico.cern.ch/event/890531/>.

Initially proposed topics by SCK-CEN are (with identified technical contacts):

1. **Cryogenics (CERN : Dimitri Delikaris, SCK-CEN: Dirk Vandeplassche, Jeroen Engelen, Gerkotze Bonthuys)**
 - review (and design)
 - System definition and optimization
 - Interaction with industrial suppliers
 - Test procedures
2. **Fast pulsing magnets (CERN: Laurent Ducimetiere, Jan Borburgh, SCK-CEN: Ulrich Dorda, Dirk Vandeplassche)**
 - Kicker magnet
 - Related power converters
 - Design and procurement follow-up
 - Discussing available expertise in scanning magnets and its power supplies
3. **White Rabbit for test setup with LLRF (CERN: Javier Serrano, Philippe Baudrenghien, Heiko Damerou?, SCK-CEN: Dirk Vandeplassche, Ulrich Dorda)**
 - pilot test
 - Apply a ready-made system as test in the injector setup at LLN
4. **Reliable acc systems (CERN: Andrea Apollonio, Jan Uythoven, SCK-CEN: Dirk Vandeplassche, Ulrich Dorda, Adrian Fabich)**
 - Depending on EU-FP/PATRICIA (approved, need discussions with Adrian as well)
 - Reliability study, MPS
5. **Beam Instrumentation (CERN: F. Roncarolo, SCK-CEN: Dirk Vandeplassche, Ulrich Dorda)**

Linac4:

 - Drawings
 - Devices for testing at LLN
 - Fes(c)henko BSM

Ion chambers for beam loss monitors:

 - Procurement path for the beam loss monitor ion chambers

6a) ISOL target relevant studies (CERN: M. Calviani, T. Stora, J. Vollaire, SCK-CEN: Lucia Popescu)

- Ion-source development for:
 - High-intensity sources
 - High-efficiency ionization
 - Selective ionization and suppression of isobaric contamination
- Target-material development for:
 - High-power ISOL targets
 - Increased isotopes-release efficiency
- RIB purification systems:
 - MR-TOF system development and applications
- Common developments for RIB applications
- Spent targets
 - Oxidation process
 - Exchange of spent targets for investigations

6b) Beam dump (CERN: Marco Calviani, Thierry Stora, Joachim Voltaire, SCK-CEN: Daniela Ene, Ulrich Dorda, Jeroen Engelen)

- BD 17 MeV
- BD 100 MeV
- temporary BDs (for intermediate energies)
- conceptual design
- advice, guidance and review on design

6c) Collector station (CERN: M. Calviani, T. Stora, J. Voltaire, SCK-CEN: Lucia Popescu)

- Design of the collector station
- Construction challenges
- Interfaces & auxiliaries
- Operation and maintenance of the station
- Sample flow schedule
- reviewing the conceptual/detailed PTF medical radioisotopes collector station design
- Envisage a visit of MEDICIS

7 Safety (SCK-CEN: Daniela Ene, Ulrich Dorda, Gerkotze Bonthuys)

- RP: CERN: S. Roesler
- Radiation Monitoring: CERN: D. Perrin,
- Environmental radiation monitoring: CERN: Fabrice Malacrida
- Fire Safety: CERN: S. La Mendola?,

No further input required on:

- Civil Engineering and General Infrastructure
- SPL elliptical cavities
- LINAC4 RF
- microTCA