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

   - Kicker magnet
   - Related power converters
   - Design and procurement follow-up
   - Discussing available expertise in scanning magnets and its power supplies

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

6b) Beam dump (CERN: Marco Calviani, Thierry Stora, Joachim Vollaire, 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. Vollaire, 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