Accelerator Research and Innovation for European Science and Society

EU Horizon 2020
INFRAIA-01-2016-2017
Integrating Activities for Advanced Communities
Starting date: 01 May 2017
Duration: 48 months

Overview

- Spiritual successor to EuCARD-2
- Project Coordinator, Maurizio Vretenar (CERN)
- 41 beneficiaries from 18 different European countries
  - one International European Interest Organization (CERN)
  - one European Research Infrastructure Consortium (ESS)
- The evaluators highlighted
  - the clarity of the innovation strategy,
  - the integration of such a large variety of partners,
  - the extent of the Transnational Access programme,
  - the intended creation of an e-learning course,
  - the proof-of-concept fund, and the development of compact accelerators.
- total budget €24.8M
  - €10M EU contribution and €14.8 M from the involved beneficiaries

Work Packages

	Type	Name	Lead Beneficiary
WP1	**Network Activity**	Management	CERN
WP2		Training, Communication and Outreach	Univ. Oxford
WP3		Industrial and Societal Applications	Univ. Huddersfield
WP4		Efficient Energy Management	PSI
WP5		European Network for Novel Accelerators	DESY
WP6		Accelerator Performance and Concepts	CERN
WP7		Rings with Ultra-low Emittance	Univ. Oxford
WP8		Advanced Diagnostics at Accelerators	GSI
WP9	**Transnational Access**	Magnet Testing	CERN
WP10		Material Testing	CERN
WP11		Electron and Proton Beam Testing	CEA
WP12		**Radio Frequency Testing**	**Uppsala Univ.**
WP13		Plasma Beam Testing	CRNS
WP14	**Joint Research Activity**	Promoting Innovation	CERN
WP15		Thin Film for Superconducting RF Cavities	STFC
WP16		Intense RF Modulated E-beams	GSI
WP17		Materials for Extreme Thermal Management	CERN
WP18		Very High Gradient Acceleration Techniques	CNRS

Transnational Access: WP12 RF Testing

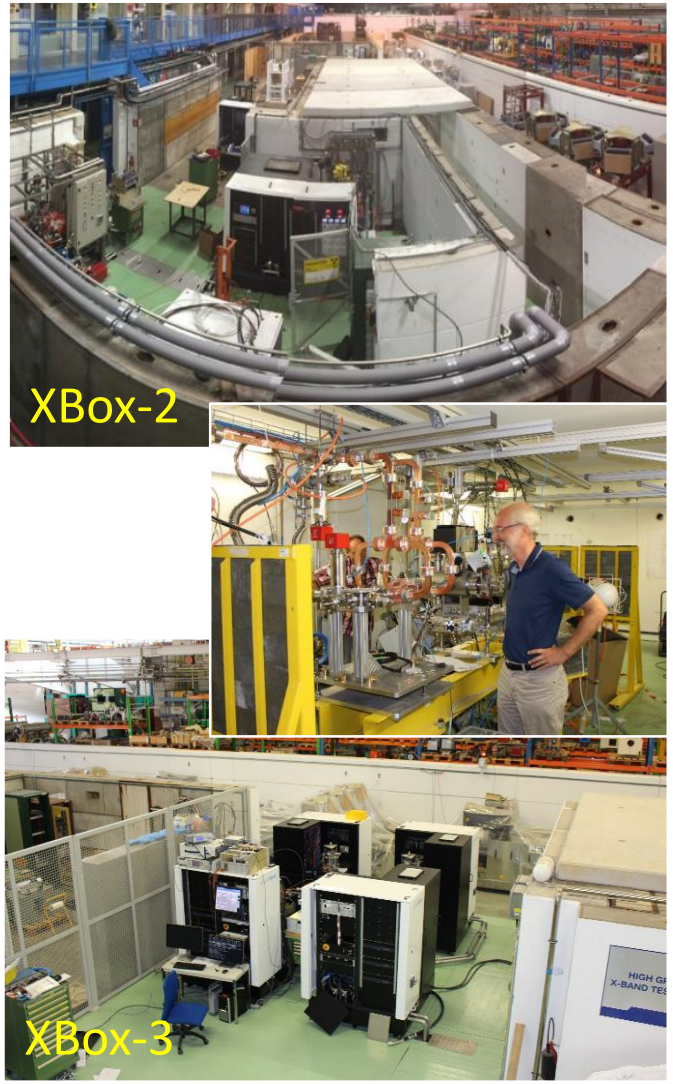
- Provision of access to 2 facilities
  - review by a User Selection Panel (see next slides)
- Total budget €1.2M
  - €327k EU contribution
- HNOSS at FREIA
  - 4 user projects, total 2880 hours of access
  - available user support
    - € 26.4k for travels and subsistence (only users from H2020 eligible states)
    - € 40k for special equipment or installation costs
- Xbox at CERN
  - 4 user projects, total 6000 hours of access
  - available user support
    - € 72k for travels and subsistence (only users from H2020 eligible states)
    - € 20k for special equipment or installation costs

HNOSS at Uppsala University

- Horizontal cryostat for superconducting cavities.
- Up to two cavities simultaneously,
  - each equipped with helium tank, fundamental power coupler and tuning system
  - user's RF conditioning electronics (under development at FREIA)
- High power RF testing
- Operation in the range 1.8 to 4.5K.

XBOX at CERN

- State-of-the-art klystron-based X-band (11.994 GHz).
- Development of high-gradient structures,
  - in the range of 100 MV/m and very high peak power, >100 MW,
  - two XBoxes powered with a 50 MW/1.5µs/50 Hz klystron,
  - one XBox powered with four combined 6 MW/5 µs/400 Hz klystrons.



Types of Experiments

- complete cavity/structure
  - to verify design, operation, conditioning behaviour
- instrumentation for diagnostics
  - to study conditioning or other behaviour
    for example
    - spectrometer for breakdown and field emission studies
    - accelerometers for vibration studies, breakdown localization
    - fast vacuum pressure measurement
- beam related studies
  - available at a later stage: study started to connect Xbox1 to the CLEAR electron beam facility
- **NOTE**:
  - 3 GHz S-band test facility available at IFIC-HGRF Laboratory at IFIC Valencia, Spain (see previous presentation)

User Selection Panel (USP)

- User selection panel is
  - facility coordinators + 3 independent experts
  - chaired by the WP coordinator
- The user groups requests access (in writing) to the USP
  - request includes
    - description of the work (max. ~2 pages)
    - names, nationalities and home institutions of the users
    - NOTE: majority of applicants from H2020 eligible state
  - contact: e-mail to WP coordinator: ruber@physics.uu.se
- USP will meet at least twice a year
  - in person or by phone/video
  - target is to respond to a request within ~2 months

User Selection Review

- Review based on scientific excellence.
  - Primary criterion is scientific merit, but for the same scientific merit priority will be given to new users and users coming from countries where such infrastructure is not available.
  - May recommend some of the projects to be carried out at another facility which offers similar TA in ARIES.
- Then the ranking of the proposals will be handed over to the Local Selection Committees of each facility,
  - will allocate access for each project and user.
  - has the right, in case of incompatibility with the technical requirements or with the facility schedule, to refuse applications and send them back to the USP with recommendations for technical improvements or schedule changes.