UCLouvain

CRC Cyclotron Resource Centre

Cyclotron Resource Centre

Technological Platform of UCLouvain/IRMP

The Cyclotron laboratory was created in the early 70's with the installation of the cyclotron "**Cyclone**":

- First beam in 1972
- Fully dedicated to research in nuclear physics, nuclear chemistry and neutron therapy until end of the 90's.
- In 1994, development of industrial applications in addition to nuclear physics and astrophysics.

The laboratory became the "Cyclotron Resource Centre" (CRC) in 1984. Officially certified as Technological Platform since 2018.

- **The centre delivers now mainly ions beams for:**

  - radiation hardness testing: light/heavy ions
  - micro-porous membrane production: heavy ions
  - material testing : light ions/neutrons
  - University research
  - protontherapy research (in development): protons

Resources

- Equipment :
  - Particle accelerator
    - Cyclotron: light and heavy ions
    - Energy: from 65 MeV proton up to 1100 MeV Xenon
  - ECR ion sources
  - Cobalt-60 source
  - Design office
  - People involved in the mechanical workshop

- Staff distribution:
  - Management: 2 people
  - Design office: 1 person
  - Project Development: 2 people
  - Technical support: 10 people (2 in the mechanical workshop)
  - Administrative support: provided by IRMP

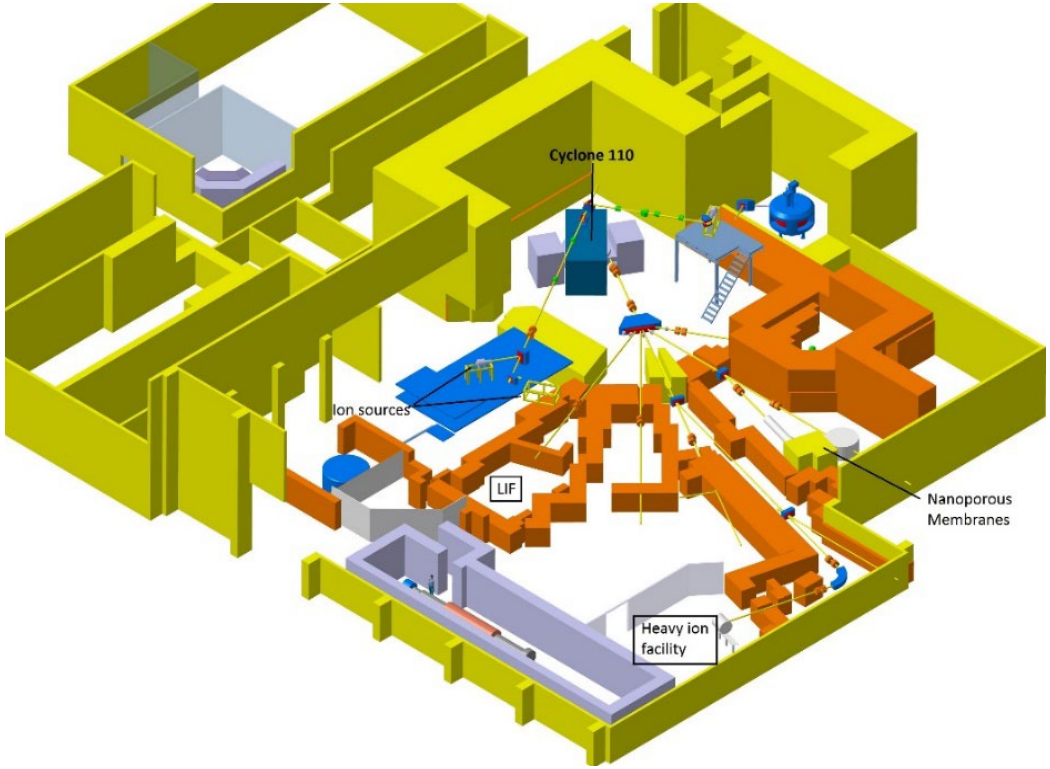
- Financial resources : 99% self-funded (Industrial applications, European and Belgian projects,…)

A few figures

- Annual sales: 2,8 M€
- 99% self-funded
  - Equipment, full operation costs and staff members
  - ~1% allocated from UCLouvain
- Operating hours: ~3.000 hours/year
- Power consumption: ~3.000 MWh/year
- External users: more than 50 companies, universities and research centres, mainly situated in Europe

Main Tests Facilities

- 3 beamlines dedicated to radiation hardness tests (heavy ions, protons, neutrons).
- 1 beamline dedicated to the production of micro-porous membranes.
- A Cobalt-60 source is also available.



Collaborations

- CRC is one of the 3 « ESA Reference centres » for radiation hardness tests.

- European Union:
  - member of the RADNEXT consortium for transnational access to the test facilities
  - involved in the EURO-LABS project to facilitate the access to the test facilities (project managed by Pr Eduardo Cortina Gil for UCLouvain/IRMP)

RADNEXT

EURO-LABS
EUROPEAN LABORATORIES FOR ACCELERATOR BASED SCIENCES

Beamtime during the period 2017-2022 (number of hours)

Year	Beamtime delivered for applications	Maintenance	Failure
2017	3246	560	33
2018	2995	577	31
2019	3145	547	73
2020	3134	493	44
2021	3262	540	35
2022	3544	492	133

- Main part of the maintenance is performed by the CRC team of technicians
- Excellent knowledge of the facility and valuable expertise
- Spare parts available in case of failure

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Beamtime distribution between applications