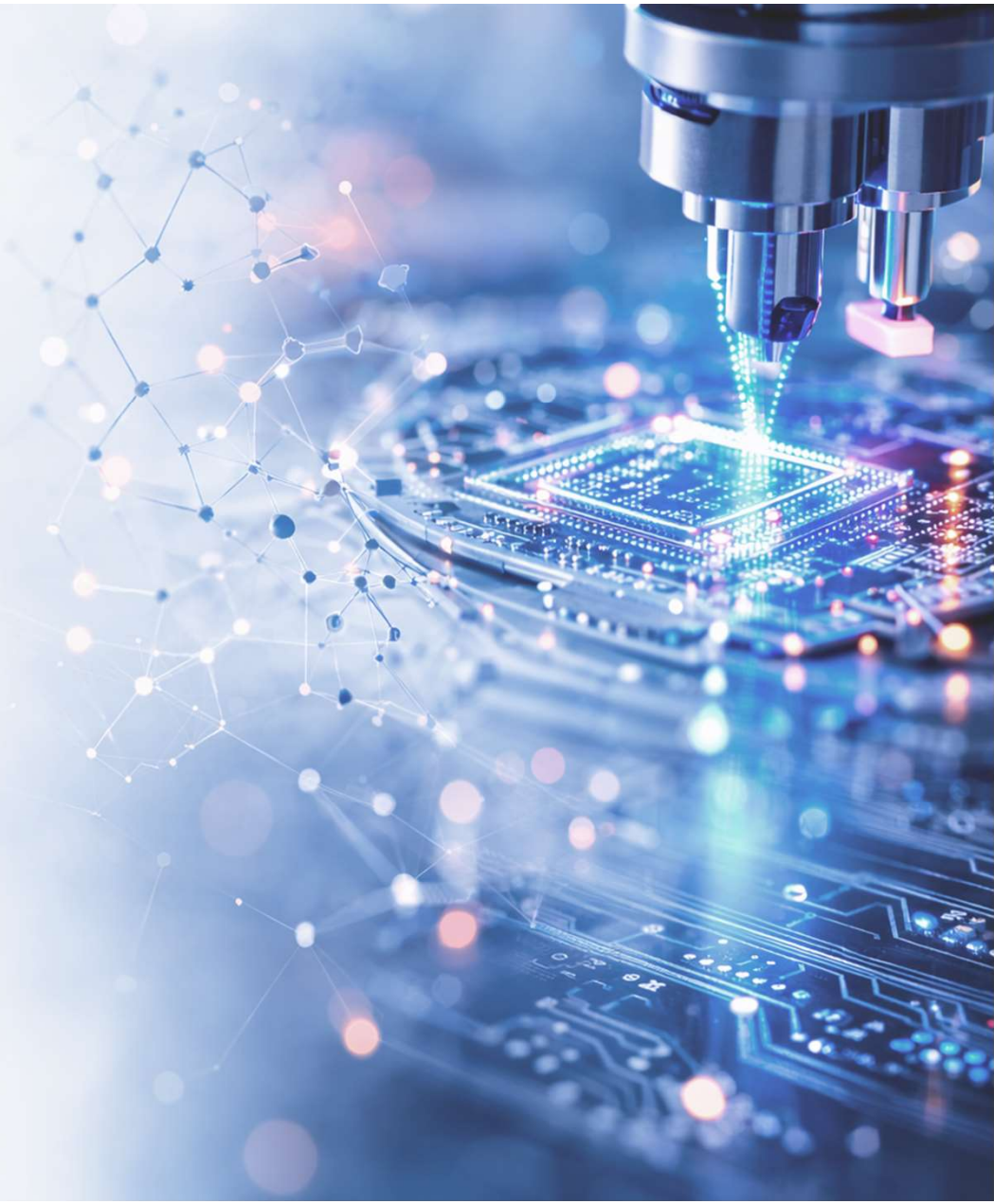
RADNEXT: Beyond a European Project, a Sustainable Network for Irradiation Infrastructure

Yolanda Morilla, CNA (US/CSIC/JA)

CIEMAT, Madrid, October 14, 2026

Fourth DONES Users Workshop



This project has received funding from the European Union's HORIZON Research and Innovation Actions under grant agreement number 101292931.

Outline



- **RADNEXT introduction**
- **RADNEXT2030 scope**
- **RADNEXT network capabilities**
- **RADNEXT activities**

RADiation facility Network for the EXploration of effects for indusTry and research https://radnext.eu/

Core Goal: Facility network & irradiation methodologies for testing electronics under radiation effects.
EU Framework: H2020 INFRAIA-02-2020 | Project ID: 101008126

RADNEXT Project Profile & Consortium Key Figures

Network scale, research facilities, and strategic partnerships (2021 – 2026)

PROJECT DURATION
June 2021 – May 2026 (5 Years)

IRRADIATION INFRASTRUCTURE
21 Facilities — Transnational Testing Network

ACADEMIC NETWORK	RESEARCH & AGENCIES	INDUSTRY ECOSYSTEM
17	4	25+
Academic Entities	Research Institutes & Agencies	Industrial Stakeholders
• 8 Academic Partners • 9 Academic Supporters	• 4 Key Agencies and Research Institutes	• 5 Industrial Partners • 20+ Industry Supporters

RADNEXT Transnational Access (TA) Deliverables

Beam Time Delivery Progress

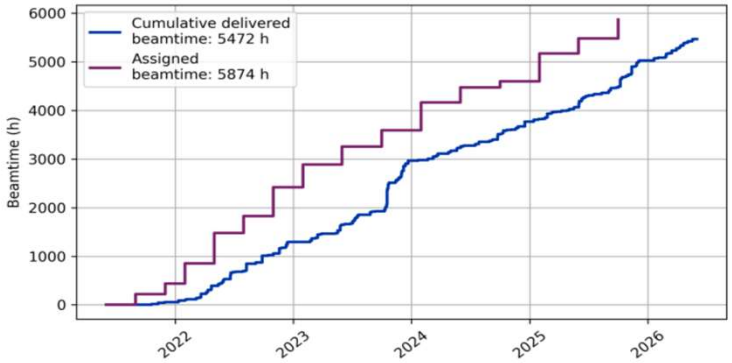
Overall progress towards the project target of 6,000 hours

~5,500 Hours Delivered (91.7%)

Target: 6,000 hrs

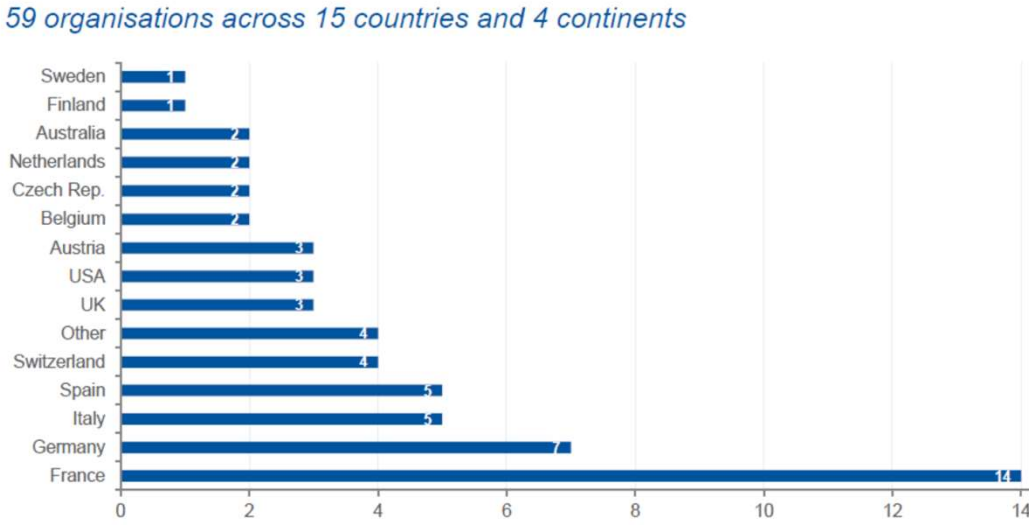
Beam Time Delivered	Supported Experiments	Target Goal Completion
~5,500 hrs	200+ exp.	91.7%
Delivered up to now	Across 21 facilities	Very close to 6,000 hrs goal

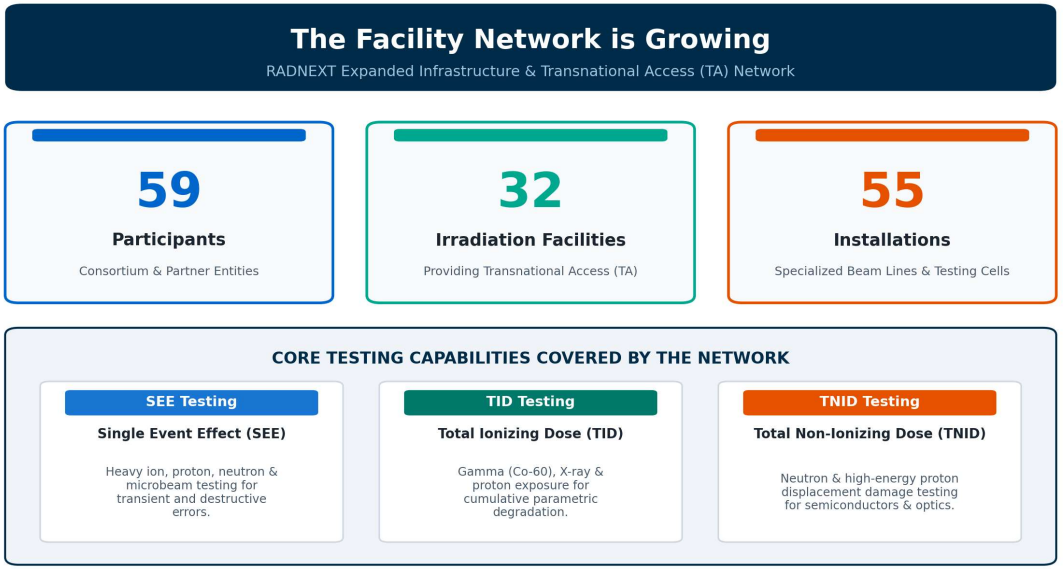
RADNEXT — Transnational Access (TA) Facilities & Irradiation Beam Time Milestones



RADiation facility Network for the EXploration of effects for indusTry and research https://radnext.eu/

Core Goal: Harmonize facility access to create an efficient, user-friendly, and innovative irradiation ecosystem.
EU Framework: H2020 INFRA-2025-01-SERV-04| Project ID: 101292931





Building on a successful foundation towards a more integrated European access ecosystem

Project Management Office — WP1
- Progress & reporting
- Communications & Events

WP2

TA coordination and training	Facility Support	User Support
• Central access portal (dev/ops/upgrade) • Testing summer school and webinars • Sustainability roadmap	• Standardised dosimetry • Service readiness & quality guides • Cross-facility intercomparisons	• Accessible setups & simulation for newcomers/SMEs • Support: proposals → execution → analysis → reporting • SME-facilitated access scheme

Access Implementation — WP4-10

WP4: SEE – Heavy ions (Synchrotron)	**WP5:** SEE – Heavy ions (Cyclotron)	**WP6:** SEE – Heavy ion (micro-beams & proxies)	
WP7: SEE – Protons	**WP8:** SEE – Neutrons	**WP9:** Cumulative Effects TID and TNID	**WP10:** Dosimetry & Radiation Monitoring

Service-oriented Research — WP3
- Dosimetry & instrumentation
- Development of open-source experimental setups
- Development of a simulation framework
- Qualification of Wide Bandgap Power devices



APPLICATION AREAS

Testing Electronic Components & Systems for Radiation Effects (RADNEXT Scope)

SPACE
Outer Orbit & Deep Space

- Cosmic Rays & Heavy Ions
- Satellite Electronics
- Single Event Effects (SEE)
- Total Ionizing Dose (TID)

AVIONICS
Atmospheric Altitude

- Atmospheric Neutrons
- High-Altitude Flight
- Critical Flight Control
- Navigation Systems

GROUND LEVEL
Terrestrial Applications

- Power Grids & Automotive
- Data Centers & AI Hardware
- Terrestrial Radiation
- System Reliability

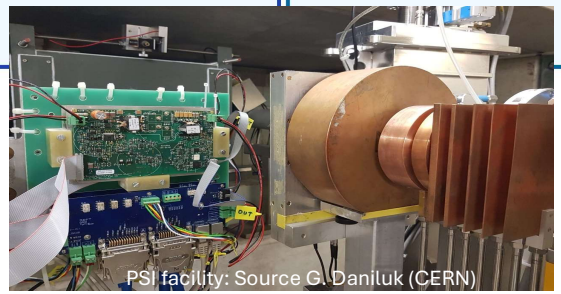
HARSH ENV.
Extreme Conditions

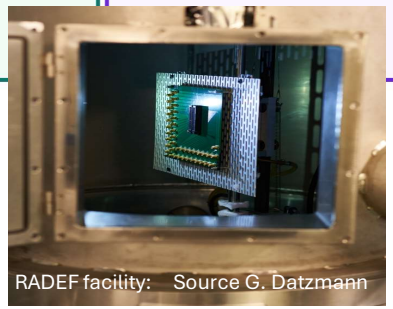
- Particle Accelerators (e.g., CERN)
- Nuclear & Fusion Facilities
- Subsea Infrastructure
- High Thermal & EMI Environments

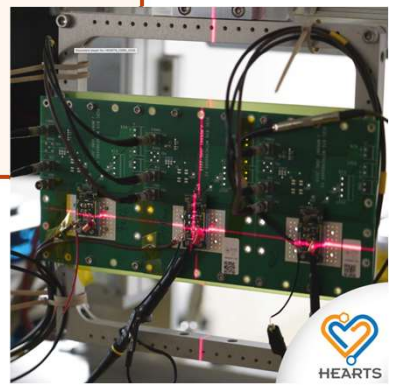
SHIELDING
Protection & Hardening

- Radiation Hardening
- Material Optimization
- Physical Containment
- Testing & Methodology

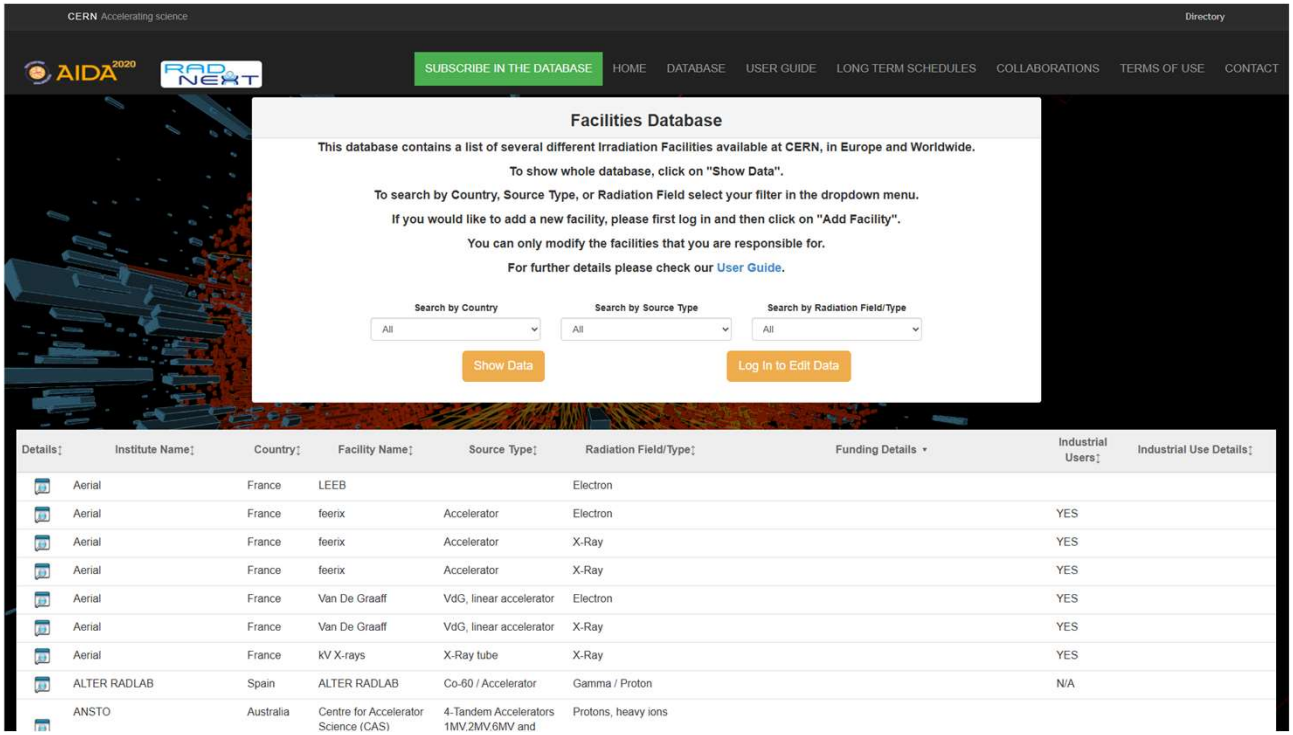

CNA facility: Source Y. Morilla


PSI facility: Source G. Daniluk (CERN)

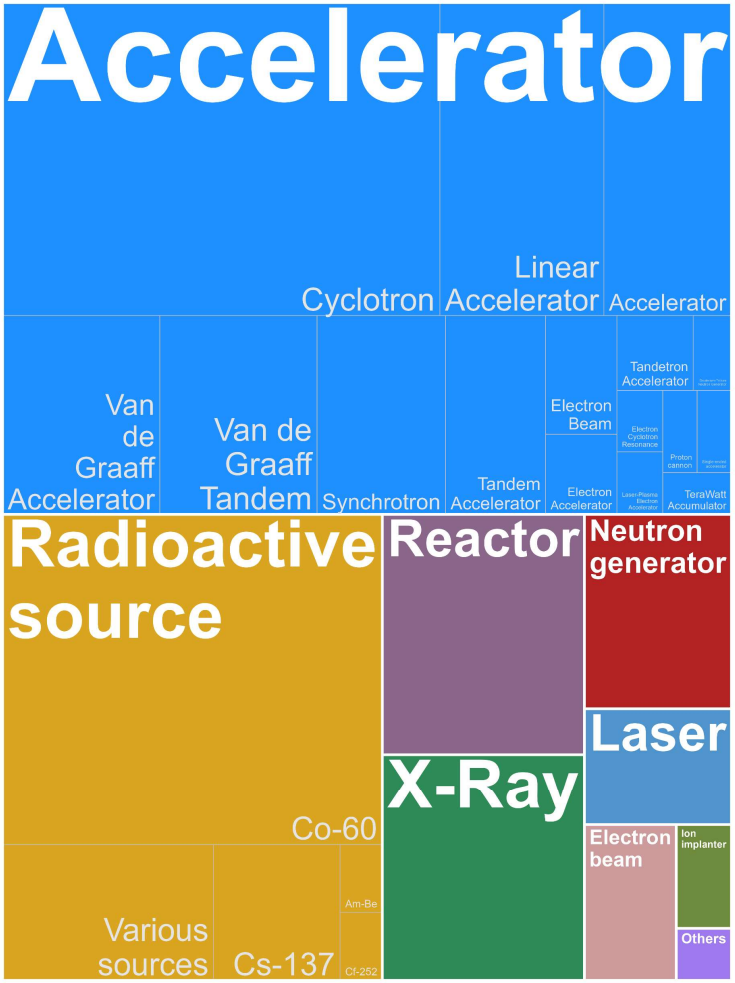

RADEF facility: Source G. Datzmann



AIDA - RADNEXT database irradiation-facilities.web.cern.ch



Details	Institute Name	Country	Facility Name	Source Type	Radiation Field/Type	Funding Details	Industrial Users	Industrial Use Details
	Aerial	France	LEEB		Electron			
	Aerial	France	feerix	Accelerator	Electron		YES	
	Aerial	France	feerix	Accelerator	X-Ray		YES	
	Aerial	France	feerix	Accelerator	X-Ray		YES	
	Aerial	France	Van De Graaff	VdG, linear accelerator	Electron		YES	
	Aerial	France	Van De Graaff	VdG, linear accelerator	X-Ray		YES	
	Aerial	France	kV X-rays	X-Ray tube	X-Ray		YES	
	ALTER RADLAB	Spain	ALTER RADLAB	Co-60 / Accelerator	Gamma / Proton		N/A	
	ANSTO	Australia	Centre for Accelerator Science (CAS)	4-Tandem Accelerators 1MV,2MV,6MV and	Protons, heavy ions			



56 **Facilities are open to industrial users**
TA democratizing opportunity for access

Transnational Access WPs

Single Event Effects | **Cumulative Effects**

Heavy ions

WP4: Synchrotron
- GSI SIS-18
- HEARTS@CERN

WP5: Cyclotron
- JYU RADEF
- UCL HIF
- GANIL G41/CIME
- UMCG PARTREC

WP6: Micro-beams & proxies
- GSI UNILAC
- ANSTO
- ESRF ID09
- KUL RELY
- Radtest SEREEL2
- TRAD LISA
- TAU Systems

WP7: Protons
- PSI PIF
- ICPO EPIC
- TRIUMF BL1B-p
- UMCG PARTREC
- HPTC
- CNAO
- PROBE@CAL
- ENEA TOP-IMPLART
- IFJ PAN AIC-144
- CNA-USE EBL/IBL
- UCL LIF
- NPI CAS CANAMp
- METU DBL
- LHEP-UNIBE BM
- HZB VICKSI
- ISIS RAL-RIKEN
- CERN CHARM

WP8: Neutrons
- ISIS ChipIr
- ISIS EMMA/NILE
- TRIUMF BL1B-n/TNF
- ENEA FNG
- GANIL NFS
- UU NESSA
- PTB PIAF
- NPI CAS CANAM-n
- ILL TENIS
- CERN CHARM

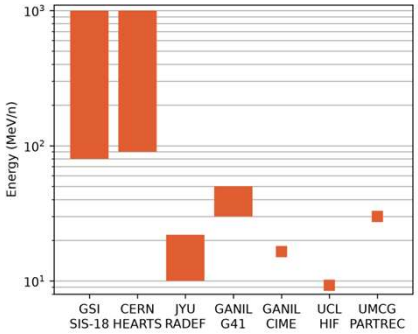
WP9: TID and TNID
- CNA-USE
- RADLAB/IBL
- ATRON FELIX
- UCL GIF
- HZB cobalt/VICKSI
- ENEA REX/Calliope/FNG
- TRAD GAMRAY
- UJM PETRA
- CERN CHARM
- PROBE@CAL
- IFJ PAN AIC-144
- NPI CAS CANAM-p
- METU DBL
- LHEP-UNIBE BMC
- ISIS NILE
- UU NESSA

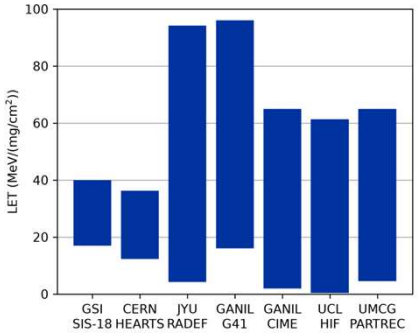
Single Event Effects | **Cumulative Effects**

WP10: Dosimetry & Radiation Monitoring
- HZDR DRACO/eELBE/gELBE/nELBE
- CERN CHARM
- ESRF ID09
- TAU Systems
- ENEA TOP-IMPLART
- ISIS RIKEN-RAL
- GANIL NFS
- NPI CAS CANAM-n

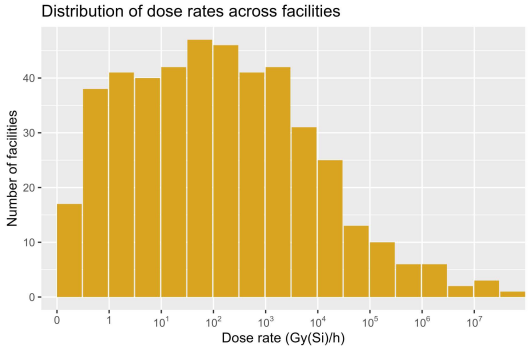
Transnational access to installations for studies of dosimetry, radiation monitoring, and radiation environments

Heavy Ion Facilities



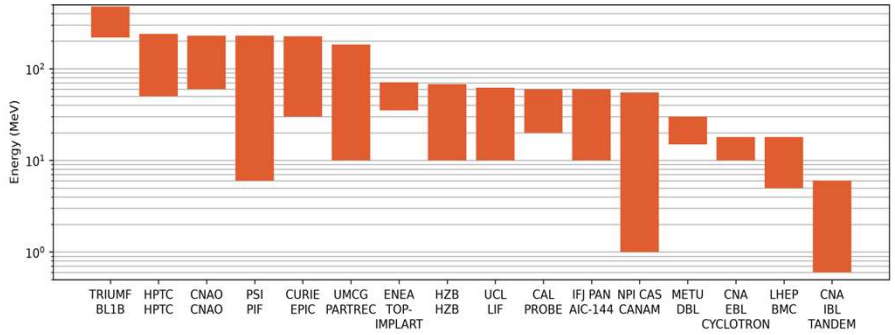


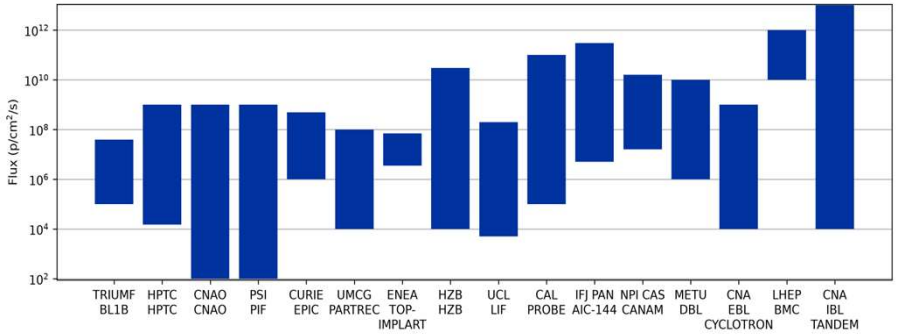
TID Facilities



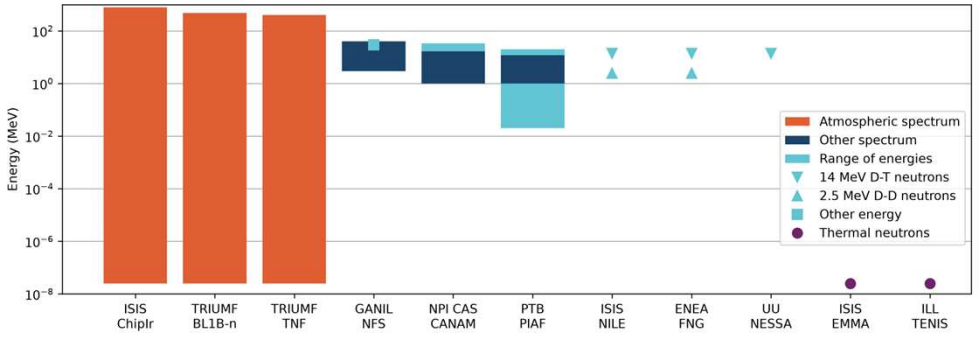
Transnational Access WPs

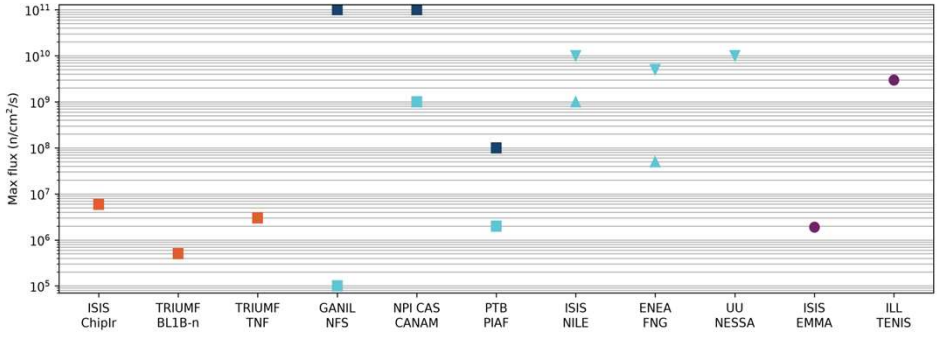
Protons Facilities



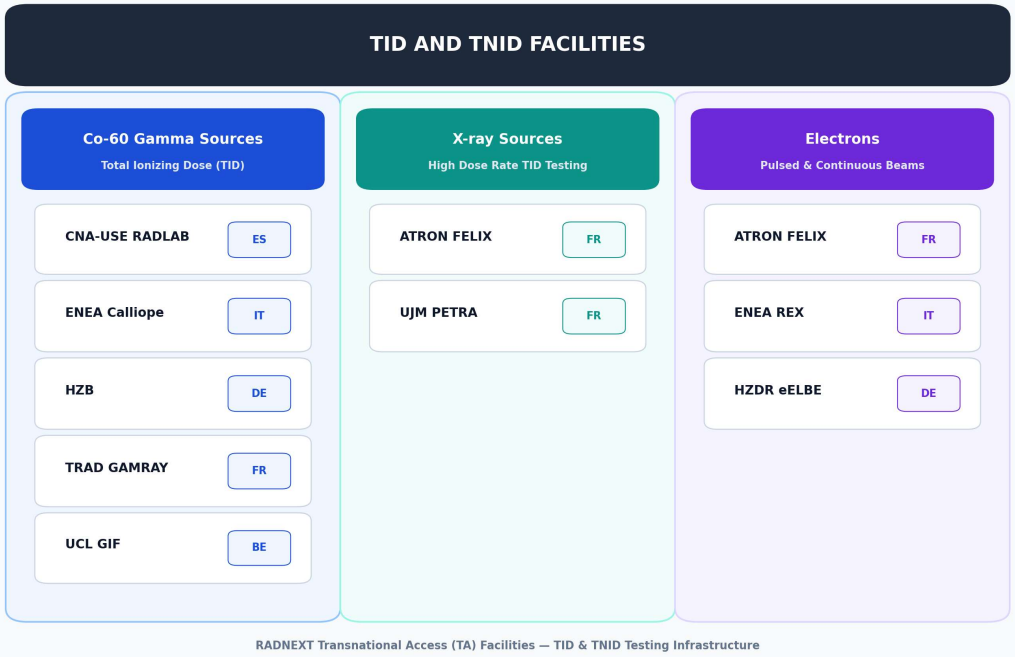


Neutrons Facilities

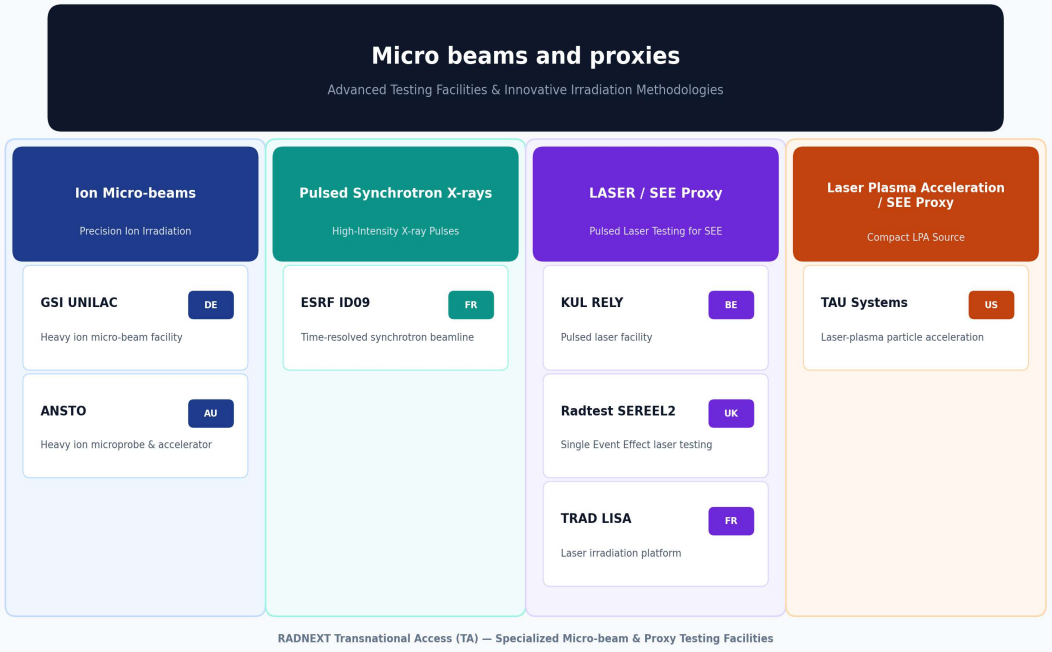




Complementary facilities



RADNEXT Transnational Access (TA) Facilities — TID & TNID Testing Infrastructure



RADNEXT Transnational Access (TA) — Specialized Micro-beam & Proxy Testing Facilities

RADNEXT 2030 Roadmap & Sustainability Model

Timeline, Key Milestones, Training Initiatives, and Post-2030 Infrastructure Continuity

HORIZON-INFRA-2025

MAR 2025
Proposal Submission
HORIZON-INFRA-2025-01
Call submission & evaluation

First call successfully closed

JUN 2026
Project Kick-Off
Official start of RADNEXT 2030
Infrastructure alignment

SEPT 2026 / MAY 2027
TA Calls & Portal
Call 1 opens for TA
New portal & Vienna Workshop

MAY 2028
Mid-Term Review
Evaluation of TA delivery
& facility performance KPIs

JUN 2030
Project Conclusion
End of EU funding period
Transition to self-sustaining

POST-2030
Long-Term Model
Self-sustaining TA access
for academic & industry

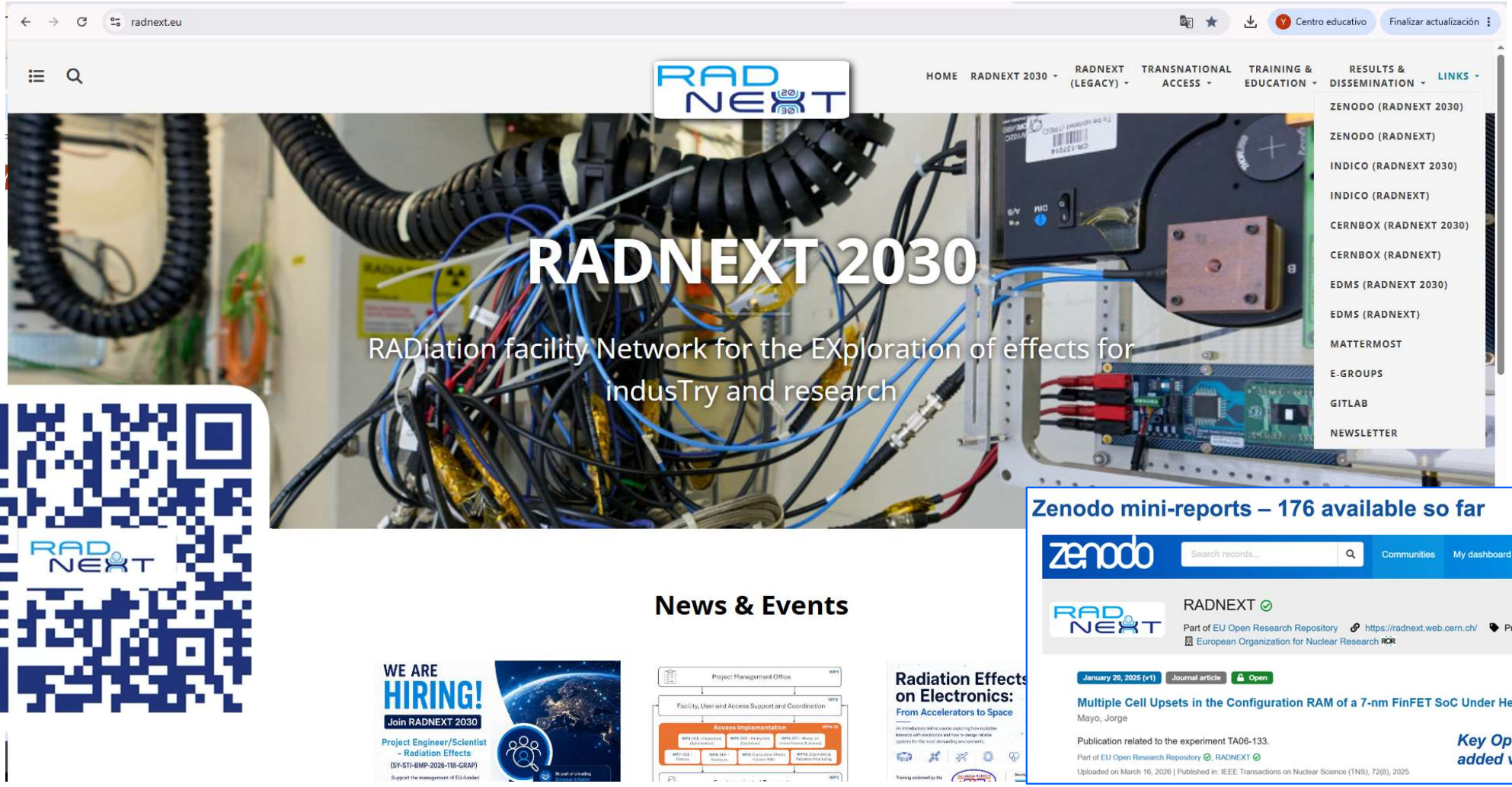
RECURRING INITIATIVES

- **3 Summer Schools:**
  - 1x Total Ionizing Dose (TID) Specialization
  - 2x Single Event Effects (SEE) Hands-on Training
- **Annual Meetings & Industry Workshops:**
  - Knowledge transfer between academia, facilities & industry
  - Annual alignment and user feedback integration

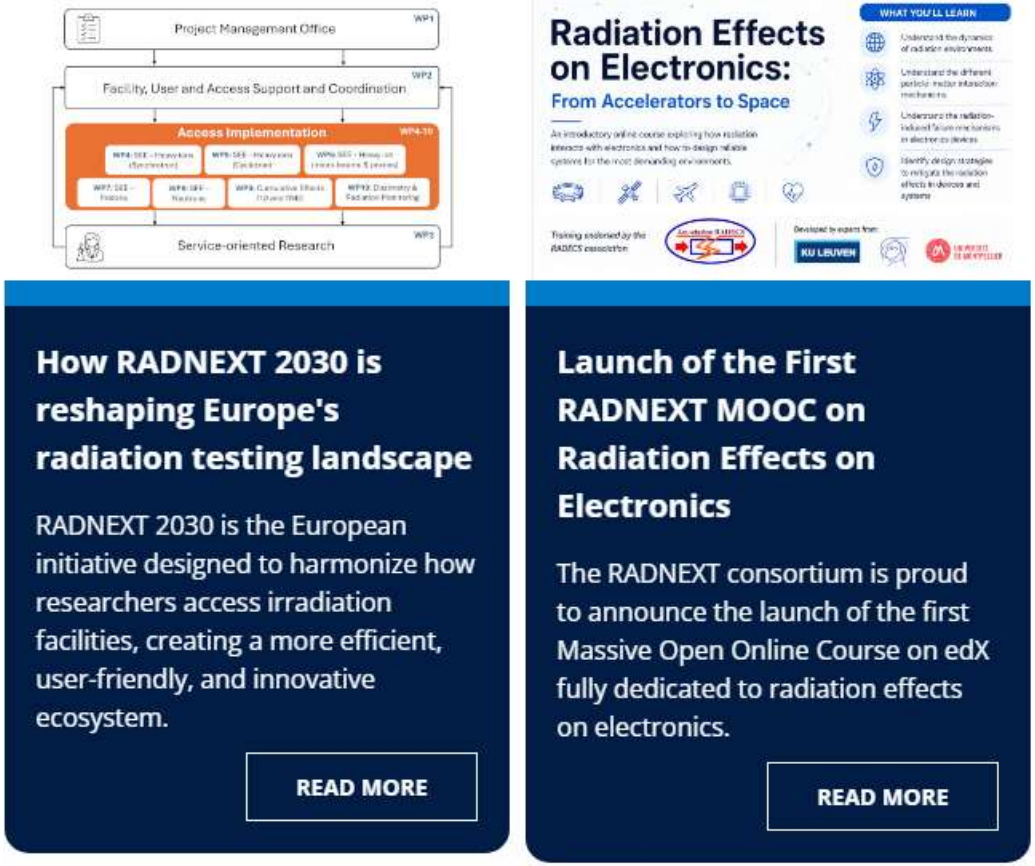


POST-2030 SUSTAINABILITY MODEL

- **Scientific Access Pathway:**
  - Peer-reviewed access promoted directly by host facilities
  - Sustained academic research without direct EU funding dependency
- **Commercial Access Pathway:**
  - Streamlined commercial access for chipmakers & space sector
  - Standardized testing protocols & harmonized cost structures


radnext.eu
HOME
RADNEXT 2030
RADNEXT (LEGACY)
TRANSNATIONAL ACCESS
TRAINING & EDUCATION
RESULTS & DISSEMINATION
LINKS
ZENODO (RADNEXT 2030)
ZENODO (RADNEXT)
INDICO (RADNEXT 2030)
INDICO (RADNEXT)
CERNBOX (RADNEXT 2030)
CERNBOX (RADNEXT)
EDMS (RADNEXT 2030)
EDMS (RADNEXT)
MATTERMOST
E-GROUPS
GITLAB
NEWSLETTER
RADNEXT 2030
RADiation facility Network for the EXploration of effects for indusTry and research
News & Events
WE ARE HIRING!
Join RADNEXT 2030
Project Engineer/Scientist – Radiation Effects
(SY-STI-BMP-2026-118-GRAP)
Project Management Office
Facility, User and Access Support and Coordination
Access Implementation
Radiation Effects on Electronics:
From Accelerators to Space
Zenodo mini-reports – 176 available so far
zenodo
Search records...
Communities
My dashboard
RADNEXT
Part of EU Open Research Repository
https://radnext.web.cern.ch/
Project
European Organization for Nuclear Research
January 20, 2025 (v1)
Journal article
Open
Multiple Cell Upsets in the Configuration RAM of a 7-nm FinFET SoC Under Heavy Ions
Mayo, Jorge
Publication related to the experiment TA06-133.
Part of EU Open Research Repository, RADNEXT
Uploaded on March 16, 2026 | Published in: IEEE Transactions on Nuclear Science (TNS), 72(8), 2025.
Key Open Science added value

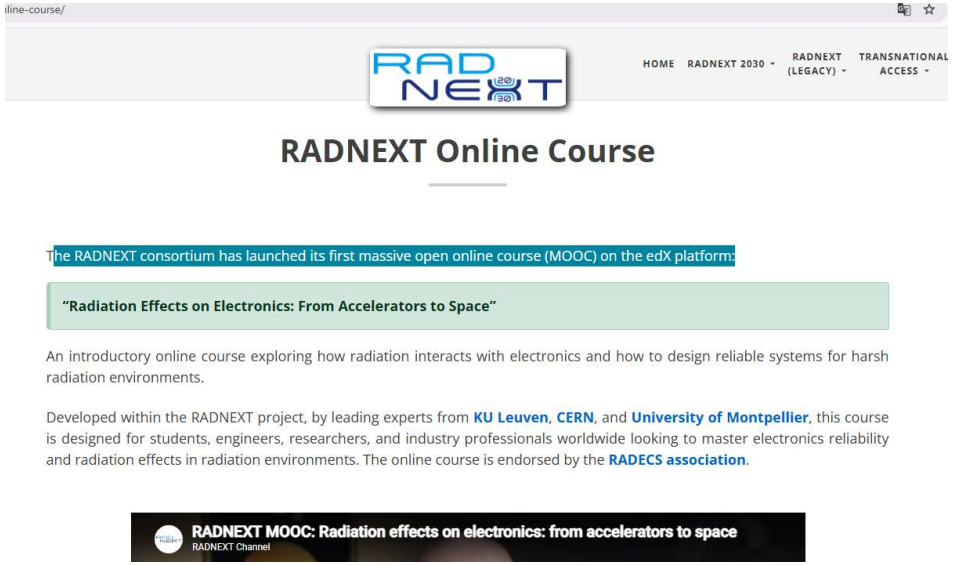
News & Events



Welcoming new reviewers!

https://indico.cern.ch/event/1656037/surveys/7489

https://radnext.eu/training-education/online-course/



RADNEXT 2030: SHAPING EUROPE'S RADIATION TESTING FUTURE

Bridging research, industry, and strategic autonomy for electronic reliability in extreme environments

PROVEN IMPACT & ACCESS

Transnational Access Achievements

5,500+ Hours
Beam time delivered up to date

200+ Experiments
User projects completed

91.7% Goal Reached
Towards 6,000-hour TA target

EXPANDING NETWORK

World-Class Testing Infrastructure

59 Participants
Academic, agency & industry

32 TA Facilities
Providing transnational access

55 Installations
SEE, TID & TNID capability

RADNEXT 2030 VISION

Next-Gen Harmonized Ecosystem

Harmonized Access
Streamlined user entry & databases

Innovative Proxies
Laser, micro-beams & synchrotrons

Strategic Autonomy
EU-wide semiconductor resilience

Beyond meeting our first goals, RADNEXT consolidates a unified, world-class testing ecosystem to secure Europe’s technological autonomy in radiation environments.

Thank you for your attention!



Image Source: CERN