

RADNEXT introduction

Rubén García Alía (CERN)

RADNEXT 3rd Annual Meeting – 10-11 June 2024

<https://indico.cern.ch/e/radnext-2024>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101008126

Many thanks for being here! (and for hosting us!)

Last time I was at STFC was for electronics testing in VESUVIO, for my PhD, more than 10 years ago!! (Chiplr was only “an idea” at the time, as Chris can probably confirm – amazing what one can achieve in “only” a decade → where will we be in 10 years from now? Time to think about it and dream big!)

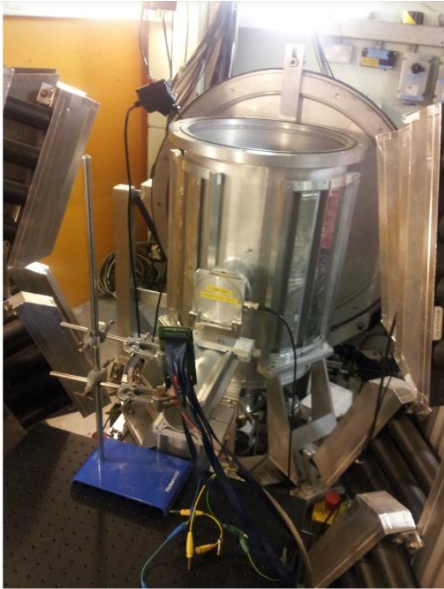


Fig. 3.9. Part of the VESUVIO beamline showing an SRAM memory board clamped to the support and the fission counter further upstream the beamline (with the yellow stickers) during the March 2014 R2E test campaign.

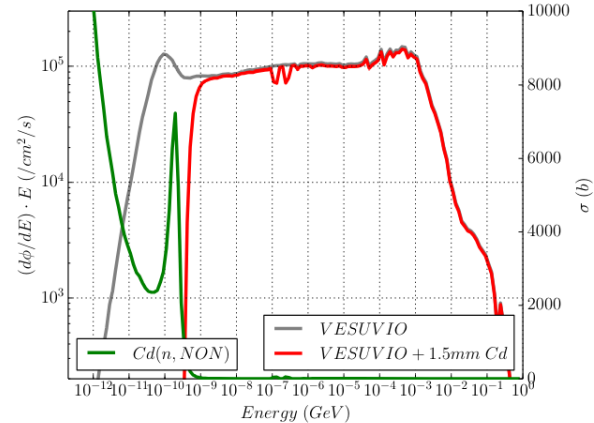


Fig. 3.10. MCNPX calculated neutron lethargy spectra at VESUVIO according to the data provided by the facility. The normalization corresponds to a proton beam current $180 \mu\text{A}$ and a DUT to flange distance of 10 cm. The neutron non-elastic cross section in cadmium is also included, showing a large peak in the thermal region.

Some key messages, before we start

- I will not say much about the **research activities** (other than congratulating the RADNEXT members involved in them) as we have a superb set of senior researchers, post-docs and students
- My only high-level messages in this regard would be to:
 - Keep track of the RADNEXT research publications, and structure them in a “standardized” format in our website (more about this in Ygor’s talk)
 - Make sure to benefit from the network dimension of the activity, and try to find links between different research lines within the project, as well as with the facility beam provision and test methodology aspects

Some key messages, before we start


- RADNEXT reporting period 2 (P2) finished on May 31st 2024, and the (final, internally reviewed) report is due 2 months after that date

P2 technical and financial report timelines:

Technical report timeline:

Date	Task
30 April	Technical report template sent to WP Leaders by Pablo
15 June	Deadline for WP Leaders to send the WP report to Pablo/RADNEXT PMO for assembling
15 June	Pablo to distribute the V1 Technical Report to PMO & PCB & Advisory Board for review
28 June	PMO / PCB / Advisory Board to ask for clarification or comment the Report for updates
7 July	WP Leaders to answer comments/questions
15 July	Pablo to send the final document to PCB for approval
31 July	Submission of the P2 report by PMO

Some key messages, before we start

- Unless very well justified, all milestones and deliverables corresponding to the P2 period should be completed by the end of the P2 reporting period, at the very latest
- **D3.1:** Harmonised research and industry user management procedures for the facilities (deadline 31.05.2024)  ***Pending submission***
- **D6.1:** Definition and Standardization of the basic requirements for Pass/fail test of systems (deadline 31.05.2024)
- **D7.1:** Comparison of X-ray / cobalt experimental data (deadline 31.05.2024)
- **D7.2:** Published list of tested components against cumulative effects (deadline 31.05.2024)

Some key messages, before we start

- Unless very well justified, all milestones and deliverables corresponding to the P2 period should be completed by the end of the P2 reporting period

Delayed milestone reports:

- **MS18:** Best platform for experiment data management identified (deadline: 31.05.2023) – *Pending submission*
WP3

Upcoming milestones:

- **MS6:** RADNEXT 3rd Annual Meeting (deadline 31.05.2024) – WP1
- **MS19:** Prototype of remote access to FPGA platform for mixed field irradiation in CHARM (deadline 31.05.2024) – WP4 *Pending submission*
- **MS25:** Comparison of X-ray / cobalt experimental data (deadline 31.05.2024) – WP7
- **MS28:** Validation of FLUKA SEE module (deadline 31.05.2024) – WP8
- **MS30:** Beginning of TNID irradiation campaign (deadline 31.05.2024) – WP7

Some key messages, before we start

- The **reporting period 2 review meeting** will likely take place on **August 23rd**, with our project officer (Sotirios KAKARANTZAS) and external reviewer (Enrique GARCIA MICHEL), in online format
- The official information about this review will come through the usual RADNEXT EU Office channel (Pablo, Cloé) but, in the meantime, you (Work Package Leaders) can anticipate:
 - To make yourselves available for that date (or nominate a representative for your WP, ideally with a good level of overview of the different activities)
 - To prepare a presentation for your WP – template/guidelines will be provided but, in terms of content, it can/should reflect the information provided in the technical report (remember: deadline for submission to RADNEXT Project Management Office is... end of this week!)

Some key messages, before we start

- The “centralized” TA process is complex and prone to single-point failures
- In summary, it consists of: facility availability collection, call opening, reviewer assignment, proposal review and decision (including two-step acceptance of first the proposal itself and then the facility), communication between user and facility, campaign scheduling and execution, RADNEXT user report...
- High level of engagement needed from WP leaders (3, 9 and 10, with WP1 support), facility coordinators, etc.
- Strong reliance on TA portal – we should centralize/automate as many features as possible in the TA portal tool → update requests to be compiled, discussed, prioritized and shared with main developer (Jarek, WP3)?

Some key messages, before we start



- **EU approval of one year project extension!!** (plus TA funds relocation and inclusion of Holland PTC as TA facility – welcome!!)
- The extension granting has been a long and resource-intensive process (which started with a meeting with our [previous] project officer in August 2023), especially from the RADNEXT EU Office – big thanks to them, as always!

Update on Grant Agreement Amendment

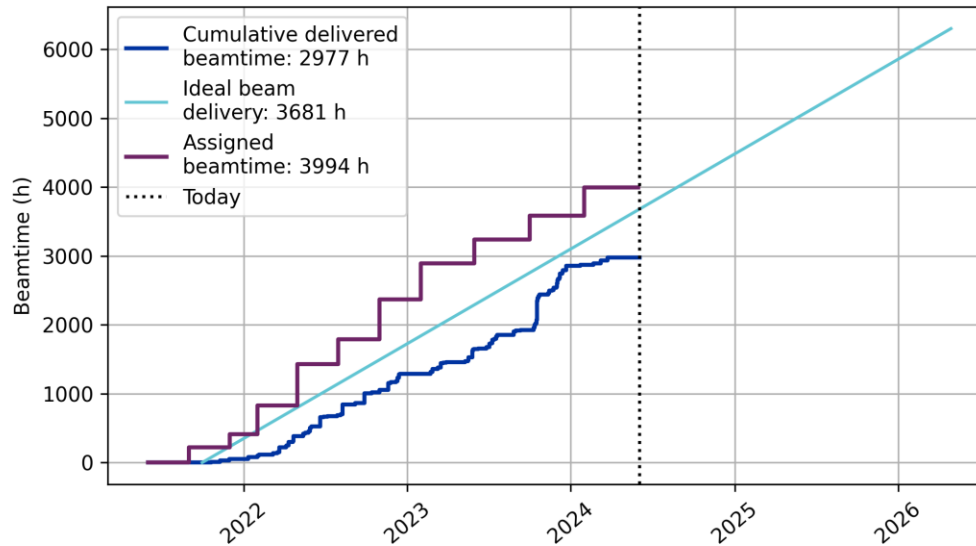
Summary of the amendment content:

1. The reallocation of TA activities and funds across certain facilities (vote approved by the PCB on October 31st, 2023). [Link to report](#).
2. The 12-month project extension request to the EU (vote approved by the PCB on November 16th, 2023). [Link to report](#).
3. The inclusion of HollandPTC in the Consortium (vote approved by the PCB on February 15th, 2024). [Link to report](#).

Some key messages, before we start

- But still, no time to relax (in relation to the 1-year extension)...

Even with the extension, reaching the target delivered hours (~6000h) by May 2026 remains a challenge



Some key messages, before we start

- Maintaining (or even somewhat ramping up) the TA delivery pace will be especially challenging in a context in which our “workhorse” facilities (“conventional” heavy ions, high-energy protons and atmospheric neutrons) are running out of beamtime

Some key messages, before we start

<u>Neutron facilities</u>					
Institute / Organisation	Facility	Country	Beam type	11 th TA call (May 2024)	Comment
PTB	PIAF	Germany	Mono-energetic neutron	Available	-
ENEA	FNG	Italy	Mono-energetic neutron	Available	-
UKRI-STFC	EMMA	United Kingdom	Thermal neutron	Available	-
HZDR	nELBE	Germany	White neutron spectrum	Available	-
GANIL	SPIRAL2-NFS	France	White neutron spectrum	Available	-
NPI-CAS	CANAM	Czech Republic	White neutron spectrum	Available	-
ILL	TENIS	France	Thermal neutron	Limited	At the end of TA funds
UKRI-STFC	Chiplr	United Kingdom	Atmospheric neutron	Limited	Approaching end of TA funds
TRIUMF	TNF	Canada	Atmospheric neutron	Limited	Approaching end of TA funds
CRNS LPSC	GENESIS	France	Mono-energetic neutron	Unknown	-



Some key messages, before we start

Proton facilities

Institute / Organisation	Facility	Country	Beam type	11 th TA call (May 2024)	Comment
HZDR	DRACO	Germany	Laser pulsed proton spectrum	Available	-
CNA	Tandem/Cyclotron	Spain	Mono-energetic < 20 MeV	Available	-
NPI-CAS	CANAM	Czech Republic	Mono-energetic < 35 MeV	Available	-
UMCG	PARTREC/AGOR	The Netherlands	Mono-energetic 10-190 MeV	Available	-
HPTC	HPTC	Netherlands	Mono-energetic 70-250 MeV	Available	-
TRIUMF	BL1B	Canada	Mono-energetic 360-500 MeV	Limited	Approaching end of TA funds
PSI	PIF	Switzerland	Mono-energetic 10-230 MeV	Limited	At the end of TA funds
CLPU	VEGA	Spain	Laser pulsed proton spectrum	Unavailable	-



Back from long shutdown



Limited beamtime assigned so far



Some key messages, before we start

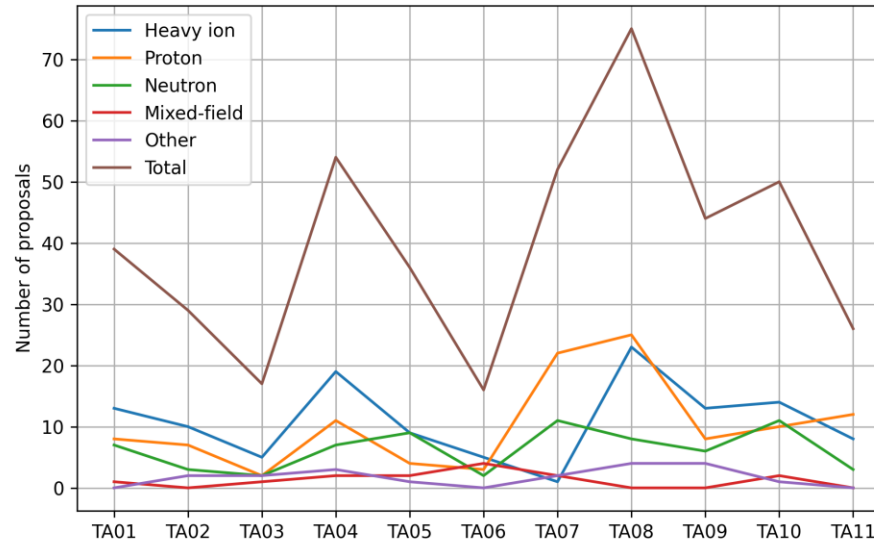
Heavy ion facilities

Institute / Organisation	Facility	Country	Beam type	11 th TA call (May 2024)	Comment
CERN	SPS North Area	Switzerland	Pb 150 GeV/n	Available	-
UCL	HIF	Belgium	Cocktail energy 9.3 MeV/n	Limited	Approaching end of TA funds
JYU	RADEF	Finland	Cocktail energy 16.3 MeV/n	Limited	Approaching end of TA funds
GSI	SIS-18	Germany	U 100-800 MeV/n	Unavailable	-
GANIL	GANIL	France	Xe 10-50 MeV/n	Unavailable	-
UMCG	PARTREC/AGOR	The Netherlands	Light ions 30-90 MeV/n	Unavailable	-
CERN	CHIMERA/HEARTS	Switzerland	Pb 130-1000 MeV/n	Unavailable	-
GSI	UNILAC	Germany	Ti and Au up to 10 MeV/n	Unavailable	Will be available in call 12 (September)



Some key messages, before we start

- Relatively low number of proposals in call 11 – could be a statistical fluctuation, but could also be related to lack of beam availability at workhorse facilities



Therefore, the key message is that...

- ... in order to continue making RADNEXT a successful project, we will need to work hard on the P2 reporting (and related pending milestones and deliverables) and make sure the “TA wheel keeps on turning”
- In particular, we will clearly need to reassign TA resources to our “workhorse facilities”, already in view of the next call, in September 2024
 - “Conventional” heavy ions: **UCL** and **RADEF**
 - High-energy protons: **PARTREC, PSI, TRIUMF, HPTC**
 - Atmospheric neutrons: **Chiplr, TRIUMF**
- Naturally, these TA resources will need to come from other facilities, in lower demand and/or with lower availability – however, we trust that the network in general and facilities releasing part of their remaining TA funds in particular will understand the importance and pertinence of these readjustments
 - After all, the TA allocation included at proposal level was only an initial iteration, which, understandably, needs to be corrected according to the “reality” of user interest and facility availability
 - More detailed discussions of TA transfer options will take place during this Annual Meeting, as a result of which the related transfer votes will be proposed electronically soon after

RADNEXT at RADECS 2024

Registrations and Late News submissions are now open! And, we will try to have a RADNEXT get-together during the event



RADECS 2024
Maspalomas, Canary Islands, Spain
16–20 September 2024

Submit a Late News abstract!
Submission deadline:
18 days 12 hours 45 minutes

Registration is open for RADECS 2024!
Early bird prices until 31 July!

Book your accommodation in time for RADECS 2024!
Click here for details!

Logos: INTA, esa, CERN

Thematic Workshop

Present and Future of SEE Testing: Facilities and Methodologies

Monday, 16th September



Thematic Workshop Co-Chair
Arto Javanainen
University of Jyväskylä (Finland)



Thematic Workshop Co-Chair
Gerd Datzmann
Datzmann interact & innovate (Germany)

WP 1, TA overview

*To be presented by
Daniel during tomorrow's
PCB meeting*

Daniel Söderström (CERN)
RADNEXT 3rd Annual Meeting – 10-11 June 2024
<https://indico.cern.ch/e/radnext-2024>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101008126

Thanks for your attention!



Image Source: CERN