

RADEF Facility @ Jyväskylä, Finland

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<https://indico.cern.ch/e/radnext-2022>



RADEF – Finland – *Heavy ions + Protons*

- Heavy ions
 - Energies: 9.3 / 10 / **16.3** / 22 MeV/u
 - Intensity: few up to $\sim 5 \cdot 10^5$ ions/cm²/sec
 - Cocktail beams (wide range of LET)
 - Several ions per campaign
 - Fast ion change
 - Testing in air or vacuum
 - Component-level testing
- Protons
 - LEP: 0.4 – 8MeV (Vacuum)
 - HEP: up to 55 MeV (Air)
 - Intensity: 100s to $3 \cdot 10^8$ p/cm²/sec (depending on energy)
- Location: Jyväskylä, Finland
- More information @ www.jyu.fi/accelerator/radef
- Point of contact: Heikki Kettunen (heikki.i.kettunen@jyu.fi)

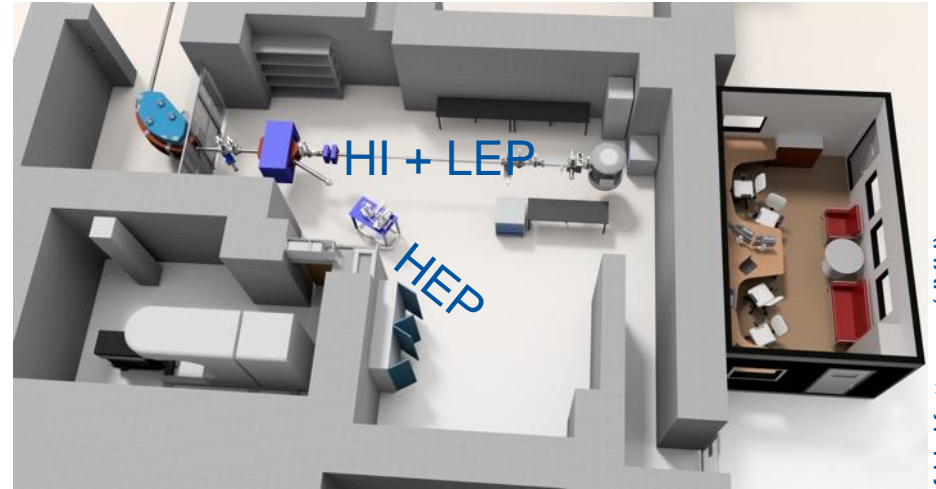


Image: courtesy of H. Kettunen (JYU)

Completed TA campaigns (1/4)

TA call	TA01
Title	Rad tolerant Power Systems for the HL-LHC, RaPSyHill
Spokesperson	Simone Paoletti
Institute	CERN
Date of test	Jan 10th – 11th 2022
Beam type	HE Protons
Number of hours	33

Completed TA campaigns (2/4)

TA call	TA02
Title	Proton testing of soft processor-based SoCs targeting low-power space missions, spSoC-Lpspace
Spokesperson	Adria Barros de Oliveira
Institute	Universidade Federal do Rio Grande do Sul (UFRGS), Brazil
Date of test	April 7th 2022
Beam type	HE Protons
Number of hours	12

Completed TA campaigns (3/4)

TA call	TA02
Title	Heavy ions SEE testing of Cobham NOEL-V with RTG4 FPGA
Spokesperson	Frederik Stuesson
Institute	Cobham Gaisler
Date of test	May 18th 2022
Beam type	Heavy ions
Number of hours	12

Completed TA campaigns (4/4)

Title	TA03
Spokesperson	Paul Leroux
Institute	KU Leuven
Date of test	May 31st 2022
Beam type	Heavy ions
Number of hours	8

Scheduled TA campaigns

No fixed schedules for accepted beam times at this point

Accepted and assigned TA campaigns, to be scheduled

Title	Spokesperson (Affiliation)	TA call	Hours to allocate	Beam type	Tentative schedule
SEEs in Silicon Photonics	Jeffrey Prinzie (KUL)	TA02	8	Heavy ions	Q3-4/2022
Latch-Up Current Limiter and Telemetry ASIC – SEE Testing and Characterization	Bojan Kotnik (SkyLab)	TA04	16	Heavy ions	Q1/2023
Qualification of the ULTRASAT sensor for single event upset and latch-up immunity	Shashank Kumar (DESY)	TA04	12	Heavy ions	Q4/2022- Q1/2023

For facilities having provided a significantly larger TA amount than foreseen for the first part of the project, would you be willing to increase your offer at the same unit cost as originally defined, in case it could be funded by the project?

If needed RADEF is willing to provide reasonable amount of “extra” beam time, if the same unit cost applies

RADEF – Beam utilization after TA01-04

	Hours	%
Total quota	300	
Completed (by 31.5.2022)	65	22 %
Assigned for 2022	101 (65+36)	34 %
Remaining quota	199 (300 – 101)	66 %

** Some additional proposals from TA04 are still under discussion*

5. Approach for user (financial) support

- RADEF can provide hotel accommodation for all TA users
 - About 150 nights (~100eur/night) in total
- Flights can be reimbursed on case-by-case basis
 - Priority to students
 - «Baseline rule»: One person per TA test campaign
 - Will reduce the «hotel block»
- TA user support will be provided as long as the allocated budget (~15keur) lasts

6. Overall feedback about TA workflow

- More clear information to be provided to facility reps (and proposal spokesperson) upon the assignment phase
 - USP-accepted hours per proposal (especially important if dramatically reduced from original proposal hours)
 - What are the rights-and-responsibilities of the facility reps?
 - How much freedom there is between USP-accepted vs. facility provided hours per proposal from the facility point of view? E.g. 20 hours requested by user, if 16 hours accepted by USP but only 12 hours available within reasonable timeframe.
- Time for "beam-on-target" is not the same as the "facility beam time"
 - Beam tuning should be taken into account (1-4 hours depending on beam and previous accelerator setting)
 - For heavy-ions typically not an issue
 - For "exotic" beams like low-E protons, it is not efficient to have 2-hour beam times
- Clear rules for user cancellations (and no-shows) to be set
 - Even though beamtime is in high demand overall, it is very difficult to find last-minute replacements for late cancellations (and especially "no-shows")

Thanks for your attention!



Image Source: JYU