Transnational Access - WP10 Proton, heavy ion and alternative beams and irradiation

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

Outline

- Part 1: Françoise BEZERRA
  - TA2 WP10 introduction
  - Protons
  - Alternative Facilities
- Part 2: Arto JAVANAINEN
  - Heavy ions
  - Conclusion and comments

Big thank you to Andrea CORONETTI for his help.

WP10 structure and members

- Coordination of transnational access to heavy ions, protons and alternative beams, in collaboration with the facility managers.

Facility/Country	Heavy ions	Protons	Alternative
GSI - Germany	✓		
UMCG PARTREC - The Netherlands	✓	✓	
GANIL France	✓		
RADEF Finland	✓	✓	
UCLouvain Belgium	✓	✓	
PSI Switzerland		✓	
CNA Spain		✓	
NPI CAS Czech Republic		✓	
TRIUMF Canada		✓	
HZDR Germany		✓	✓
ESRF France			✓
CLPU Spain		✓	✓
CERN Switzerland	✓		

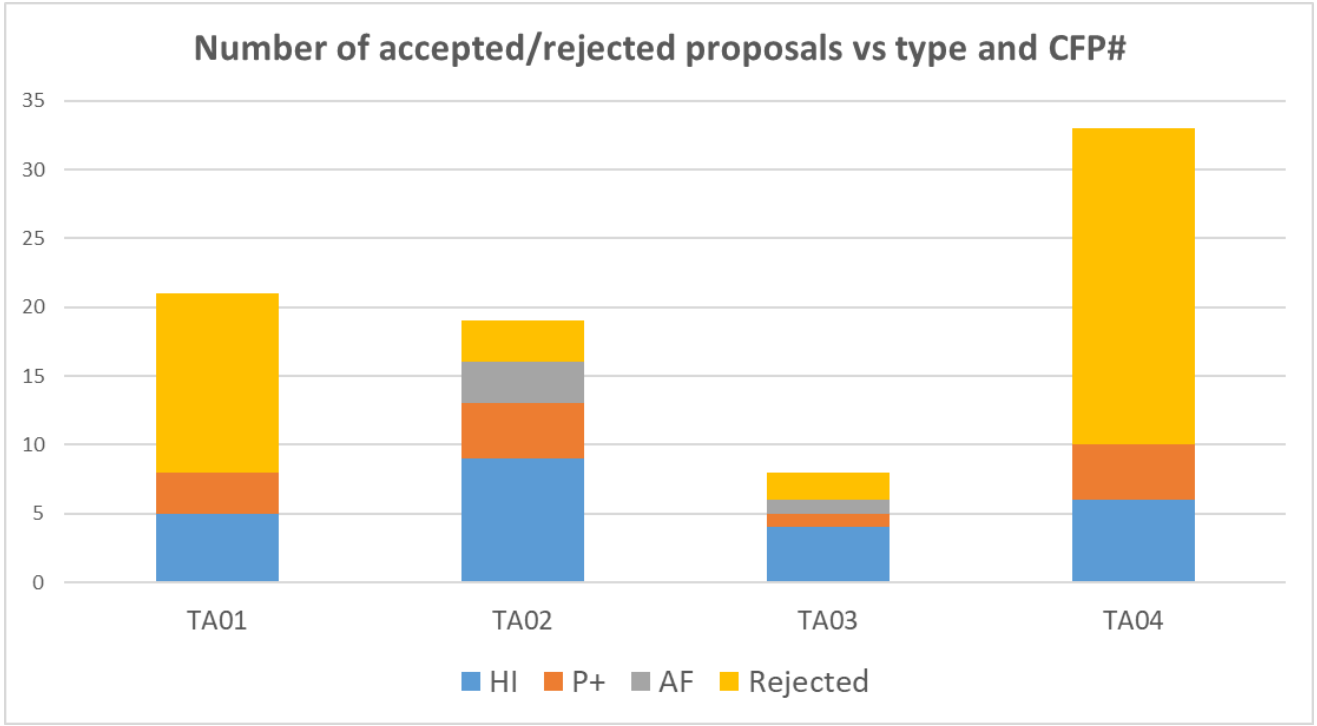
WP10 –TA02– *Heavy ions + Protons + Alternative Facilities*

- Huge amount of proposals: Accepted/Proposed

Beam Type - TA call	TA01	TA02	TA03	TA04	Total
Heavy ions	**5/13**	**9*/10**	**4*/5**	**6/19**	**24*/47**
% Accepted	*38*	*90*	*80*	*32*	*51*
Protons	**3/8**	**4/6**	**1/2**	**4/11**	**12/27**
% Accepted	*38*	*67*	*50*	*36*	*44*
Alternative Facilities	**0/0**	**3/3**	**1/1**	**0/3**	**4/7**
% Accepted	*-*	*100*	*100*	*0*	*57*
Total	**8/21**	**16*/19**	**6*/8**	**10/33**	**40*/81**
% Accepted	*38*	*84*	*75*	*30*	*47*

*: 2 proposals were cancelled by the user after being accepted.

WP10 –TA02– *Heavy ions + Protons + Alternative Facilities*



*: 2 proposals were cancelled by the user after being accepted (1 in TA02, 1 in TA03).

Status for accepted proposals (beam time hours)

		Requested	Assigned	Used	Scheduled	To be scheduled
TA01:	HI	126	88	60	0	20
	P	97	68	48	0	20
	AF	0	0	0	0	0
TA02:	HI	120	108	32	0	64
	P	64	44	12	20	12
	AF	108	120	0	0	72 (+48)
TA03:	HI	82	40	24	0	16
	P	8	8	0	0	8
	AF	72	72	72	0	0
TA04:	HI	98	104	0	12	92
	P	36-158	54	0	40	14
	AF	32	32	0	0	32

Protons

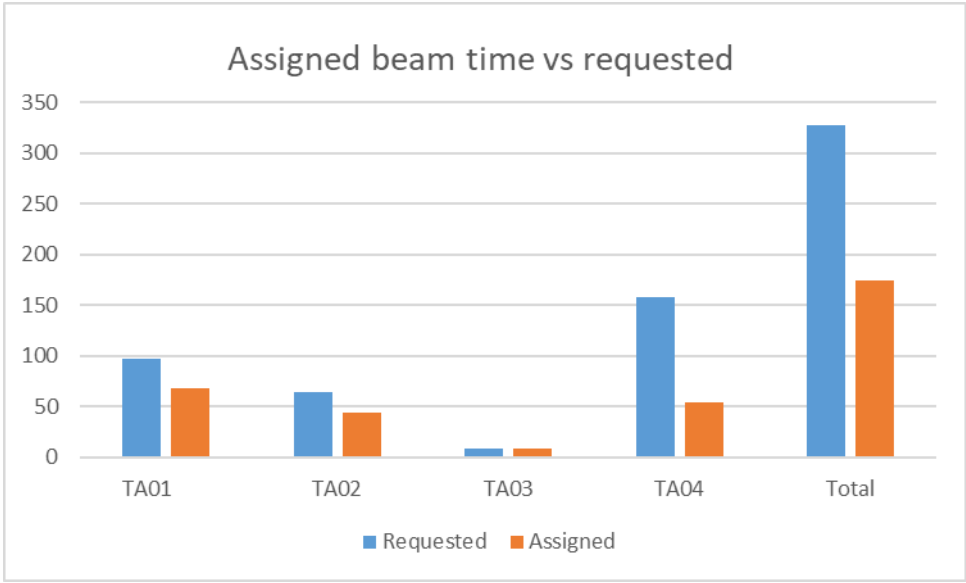
	Requested h (proposals)	Assigned	Used	Scheduled	To be scheduled
TA01	97 (3)	68	48	0	20[1]
TA02	64 (4)	44	12	20	12
TA03	8 (1)	8	0	0	8[2]
TA04	36-158 (3)	54	0	40	14
Total	205-327	174	60	60	54

1: TA01_29 – Due to Covid restriction user found an alternative. Additional tests Q1/2023

2: 8 h to be re-scheduled at UMCG-PARTREC for TA03_02

Protons: Statistics (1/4)

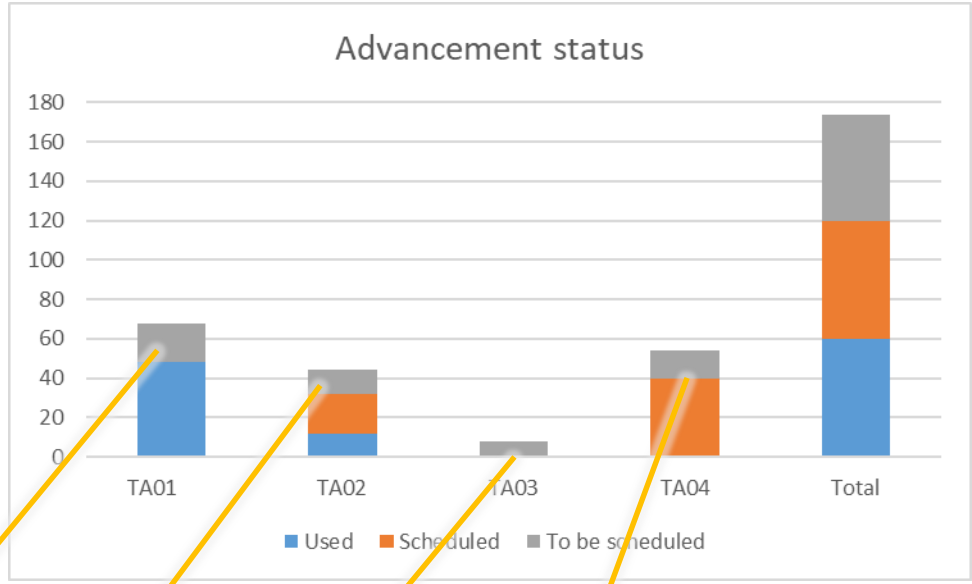
	Requested	Assigned
TA01	97	68
TA02	64	44
TA03	8	8
TA04	158	54
Total	327	174



The main difference comes from a few proposals requesting too many hours

Protons: Statistics (2/4)

	Used	Scheduled	To be scheduled
TA01	48	0	20
TA02	12	20	12
TA03	0	0	8
TA04	0	40	14
Total	60	60	54



TRIUMF BL1B: delayed to Q1 2023

PSI

UMCG

NPI-CAS, PSI

Protons: Statistics (3/4)

For used hours delay between submission and beam use: ~ 5 months

	Used (Hours)	Delay (days)
PSI	**15**	**105**
RADEF	**33**	**175**
RADEF	**12**	**180**
Average		**153**

Protons – Statistics (4/4)

Beam time already assigned vs facility

Facility - Hours	TA available (h)	TA assigned (h)	TA delivered (h)	% assigned/available
TRIUMF BL1B	120	20	0	16
PSI	130	47	15	36
CNA	200	0	0	0
RADEF	150	45	45	30
UMCG	237,5	60	0	25
UCL	40	0	0	0
NPI-CAS	40	2	0	5

Protons – Available Summary Reports

TA01_13: TOSHE- Test Of Systems for Harsh Environment

- Luigi Dilillo, CNRS-LIRMM
- 15 hours of proton beam at PSI-PIF on November 29th to December 2nd 2021.

TA01_30: Rad tolerant Power Systems for the HL-LHC

- Simone Paoletti, INFN-Firenze
- 33 hours of proton beam at RADEF on January 10 &11th.

TA02_08: Test performed on 07/04/2022, report due: July 2022

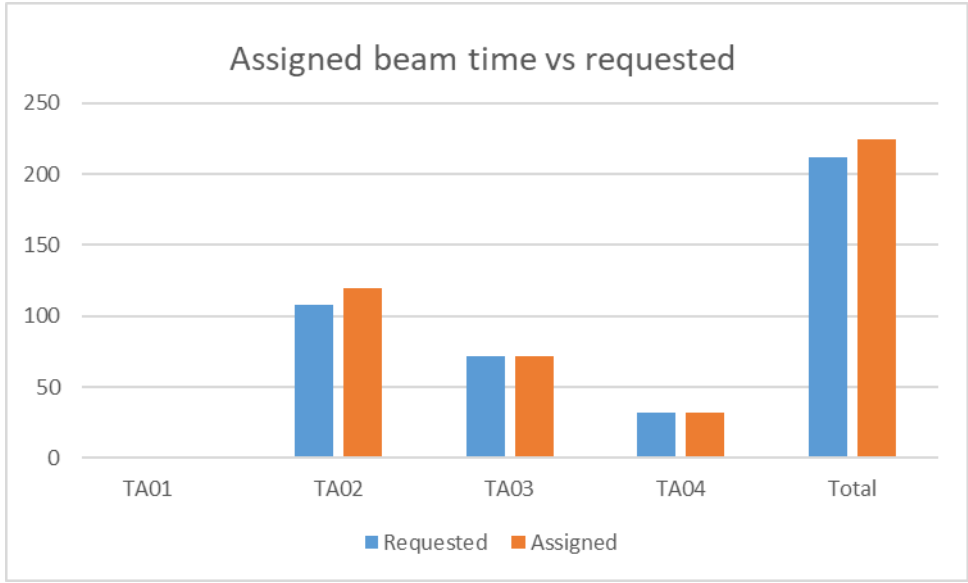
Alternative facilities

	Requested	Assigned	Used	Scheduled	To be scheduled
TA01	0	0	0	0	0
TA02	108 (3)	120[1]	0	0	72[2] +48[3]
TA03	72 (1)	72	72	0	0
TA04	32 (1)	32	0	0	32
Total	212	224	72	0	104 (+48)

- 1: ESRF proposed 9 slots (72h) to cover TA02_06 and TA02_09 needs altogether
- 2: Additional ESRF local PAC was mandatory. Submitted in March 10th and granted in June 2nd. To be scheduled between September 2022 and March 2023
- 3: 48h assigned at VEGA for TA02_20 but the proposal requested beam is not compatible with the current facility.

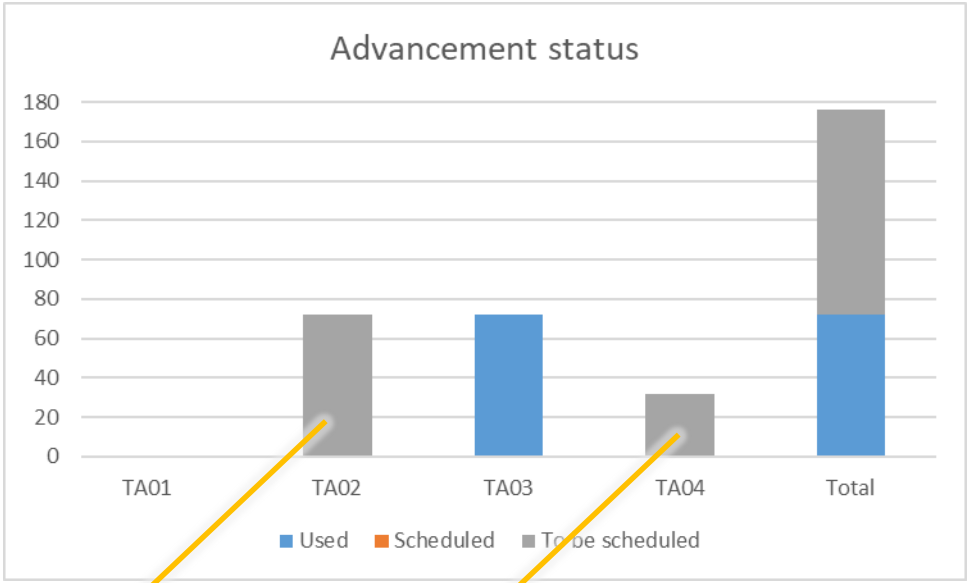
Alternative facilities: Statistics (1/4)

	Requested	Assigned
TA01	0	0
TA02	108	120
TA03	72	72
TA04	32	32
Total	212	224



Alternative Facilities: Statistics (2/4)

	Used	Scheduled	To be scheduled
TA01	0	0	0
TA02	0	0	72 (+48)
TA03	72	0	0
TA04	0	0	32
Total	72	0	104 (+48)



Delay due to additional ESRF local PAC.

VEGA

Alternative Facilities: Statistics (3/4)

For used hours delay between submission and beam use:

	Used	Delay (days)
HZDR-g	**72**	**100**

Note:

At ESRF, an additional delay is mandatory as the assigned proposal shall be resubmitted to the local PAC with only 2 rounds/year (March/September). In march 2022, the 2 proposed RADNEXT experiments (TA02_06 and 09) have been granted 9 slots (72 hours).

Alternative Facilities – Statistics (4/4)

Beam time already assigned vs facility

Facility - Hours	TA available (h)	TA assigned (h)	TA delivered (h)	% assigned/available
ESRF	288	72	0	25
CLPU VEGA	150	32 (+48)[1]	0	21 (53[1])
HZDR DRACO	120	0	0	0
HZDR-gELBE	80	72	72	90
HZDR-eELBE	80	0	0	0

1: 48 h assigned to TA-02_20 but kept on hold as VEGA judged it as unfeasible for the time being.

Alternative facilities – Available Summary Reports

TA03_08: Test of the detector system for the Stopping Target Monitor of the Mu2e Experiment in the presence of a high flux gamma background.

- Joseph PRICE, University of Liverpool
- 72h at HZDR-gELBE (X-rays) on May 22-26th.

Thanks for your attention!

Image Source: CERN