SwissFEL Exchange Meeting Machine Report Week 43/2022

Zheqiao Geng, SEM, 31 Oct. 2022

SwissFEL Operation Calendar

MON	TUE	WED	THU	FRI	SAT	SUN
24	25	26	27	28	29	30
廿九	十月	初 <u>一</u>	初三	初四	初五	初六

GMT+01 Linac3 partially off (energy saving)

GMT+01	Linac3 partially off (energy savin	ig)											
	RC: Geng, BD-support: Reiche, PC: Kirsten Schnorr												
7 AM	Set-up (Weilbach) 7am – 3pm	Alvra 2.5 keV l mJ 7am – 3pm	Maloja, 2 colour 500/550 eV	Alvra 7am – 3pm	Maloja 7am – 3pm	Energy change 7 – 9am	Aramis	Bernina 7 Iow BW 7am - 3p	Maloja 7am – 3pm	Bernina 7am – 3pm	Maloja 7am – 3pm	Cristallina 6.5 7am – 3pm	Maloja 7am – 3pm
8 AM —		7an - Spin	7am – 3pm					7an - sp					
9 AM —	Measure MK jitter (Voulot), 9a					Cristallina 6.5 9am – 3pm	Maloja 9am – 3pm						
10 AM —	Check how many linac3 statio ??Tunnel access to fix Gas de 10 - 11am					sam opm	- Jan John -						
11 AM —									SwissFEL RC Excha 11am, https://psich				
12 PM													
1 PM													
2 PM													
3 PM —	Set-up (Kittel) 3 – 11pm	Alvra 3 – 11pm	Maloja 3 – 11pm	Alvra 3 – 11pm	Maloja 3 – 11pm	Cristallina 3 – 11pm	Maloja 3 – 11pm	Bernina 3 – 11pm	Maloja 3 – 11pm	Bernina 3 – 11pm	Maloja 3 – 11pm	Cristallina 3 – 11pm	Maloja 3 – 11pm
4 PM													
5 PM —													
6 PM													
7 PM —													
8 PM													
9 PM					-								

□ Aramis operation as planned

□ Athos planned changed:

- 2-color mode was successfully setup on Thursday
- Monday to Wednesday polarization

User Requests and Machine Setup

Aramis

- Alvra: 2.5 keV, low bandwidth, ~1 mJ, 20-25 fs rms
 - S30CB03 ~ 13 in blackheating for energy saving
 - Reload 2.5 keV and return compression on both bunches. We get 940 uJ at 2.5 keV
- Bernina: 7 keV, low BW, > 800 uJ, 40 fs fwhm, small BW, optimized 50Hz jitter
 - Check lasing at 7 keV without last 4 linac3 stations we get more than 800 uJ without any tuning and we can reach 8 keV with the K
 - S30CB10 ~ 13 in OFF (later blackheating)
- Cristallina: 6.5 keV, > 800 uJ, 20 fs rms
 - S30CB10 ~ 13 in OFF (later blackheating)

Athos

- Maloja: 2-color mode 500 / 550 eV
 - Monday setup not successful
 - Determined to postpone 2-color mode to Thursday and setup polarization for plan B

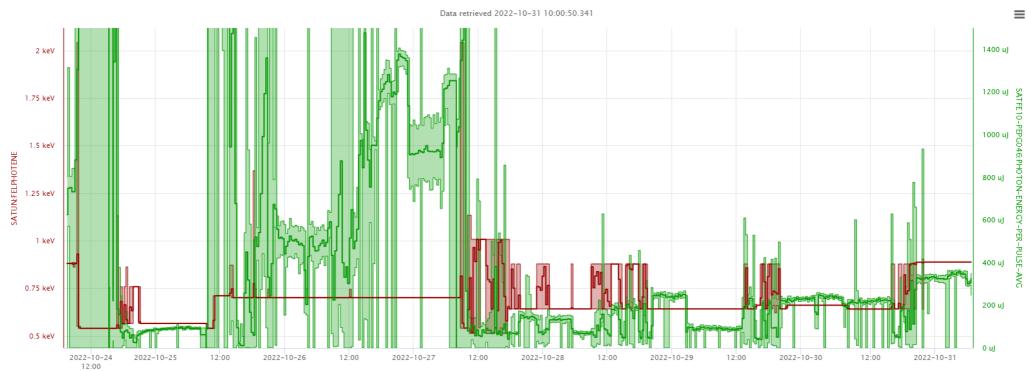
Photon Historical Data

2000 uJ 20 keV 1750 uJ SARFEI 0-1500 uJ PBPG050: 15 keV 1250 uJ SARUN: FELPHOTENE PHOTON 1000 uJ -ENERGY-PER-PULSE-AVG 10 keV 750 uJ 500 ul 5 keV 250 uJ 0 uJ 0 keV 12:00 2022-10-24 2022-10-25 12:00 2022-10-26 12:00 2022-10-27 12:00 2022-10-28 12:00 2022-10-29 12:00 2022-10-30 2022-10-31 12:00

Data retrieved 2022-10-31 09:57:26.582

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← SARUN:FELPHOTENE ← SARFE10-PBPG050:PHOTON-ENERGY-PER-PULSE-AVG



Technical Issues

- Tunnel access for repairing Gas detectors. Injector RF stations fell to OFF that needed 1 hour heating time. Should inform RF when making longer tunnel access, so that they can extend the filament->OFF waiting time
- □ Mirror blocked in Aramis, slightly delayed the pointing check and BW optimization for Alvra
- FEL shutter closed multi-times without alarm due to wrong configuration of Aramis Photonics Mode Monitor
- □ SINSB04 high amplitude jitter (reasons found, partly mitigated, will further optimize during maintenance days in this week)
- Dechirper (S30CB15-UDCP200) position alarm, determined not to touch during weekend