

# RC Report 2020 Week 39 - RC: Nicole Hiller

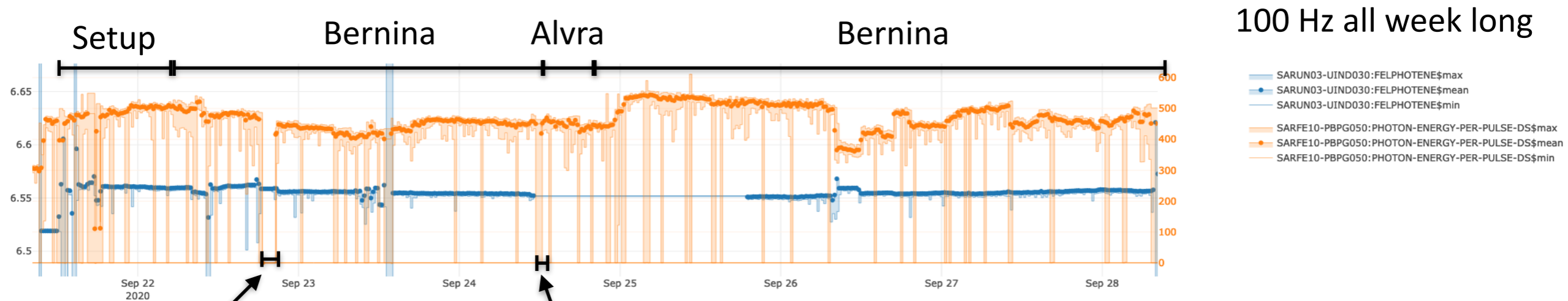
## BD Support: S. Reiche, PC: Roman Mankowsky

SwissFEL Operation, Absences, ARAMIS Accel. Dev., Mon 2020-09-21 – Sun 2020-09-27 (Central European Time - Zurich)  
 Aramis Phot. Dev., Aramis User Operation, Athos Accel. Dev., Athos Phot. Dev., Athos User Operation, Meetings, PSI Holidays/Events,  
 SwissFEL Setup, SwissFEL Shutdown Schedule, Holidays in Switzerland

	Mon 9/21	Tue 9/22	Wed 9/23	Thu 9/24	Fri 9/25	Sat 9/26	Sun 9/27
00:00	Photonics commissioning 00:00 - 07:00	Athos first priority 00:00 - 07:00	Set-up 00:00 - 07:00	Bernina 00:00 - 07:00	Bernina 00:00 - 07:00	Set-up 00:00 - 07:00	Bernina 00:00 - 07:00
01:00							
02:00							
03:00							
04:00							
05:00							
06:00							
07:00	Set-up 07:00 - 15:00	Bernina, 6.4-7.0 keV, 100Hz 07:00 - 15:00	Bernina 07:00 - 15:00	Alvra commissioning, 6.4-7.0 keV, 100 Hz 07:00 - 15:00	Bernina 07:00 - 15:00	Bernina 07:00 - 15:00	Bernina 07:00 - 15:00
08:00		Check					
09:00							
10:00			STC,				
11:00							
12:00							
13:00		SEM,					
14:00							
15:00	Set-up 15:00 - 23:00	Bernina 15:00 - 23:00	Bernina 15:00 - 23:00	Alvra commissioning 15:00 - 23:00	Bernina 15:00 - 23:00	Bernina 15:00 - 23:00	Bernina 15:00 - 23:00
23:00	Set-up, 23:00 -	Bernina, 23:00	Bernina, 23:00	Set-up, 23:00 -	Bernina, 23:00	Bernina, 23:00	Bernina, 23:00

# Bernina Experiment & Alvra Commissioning

## Aramis



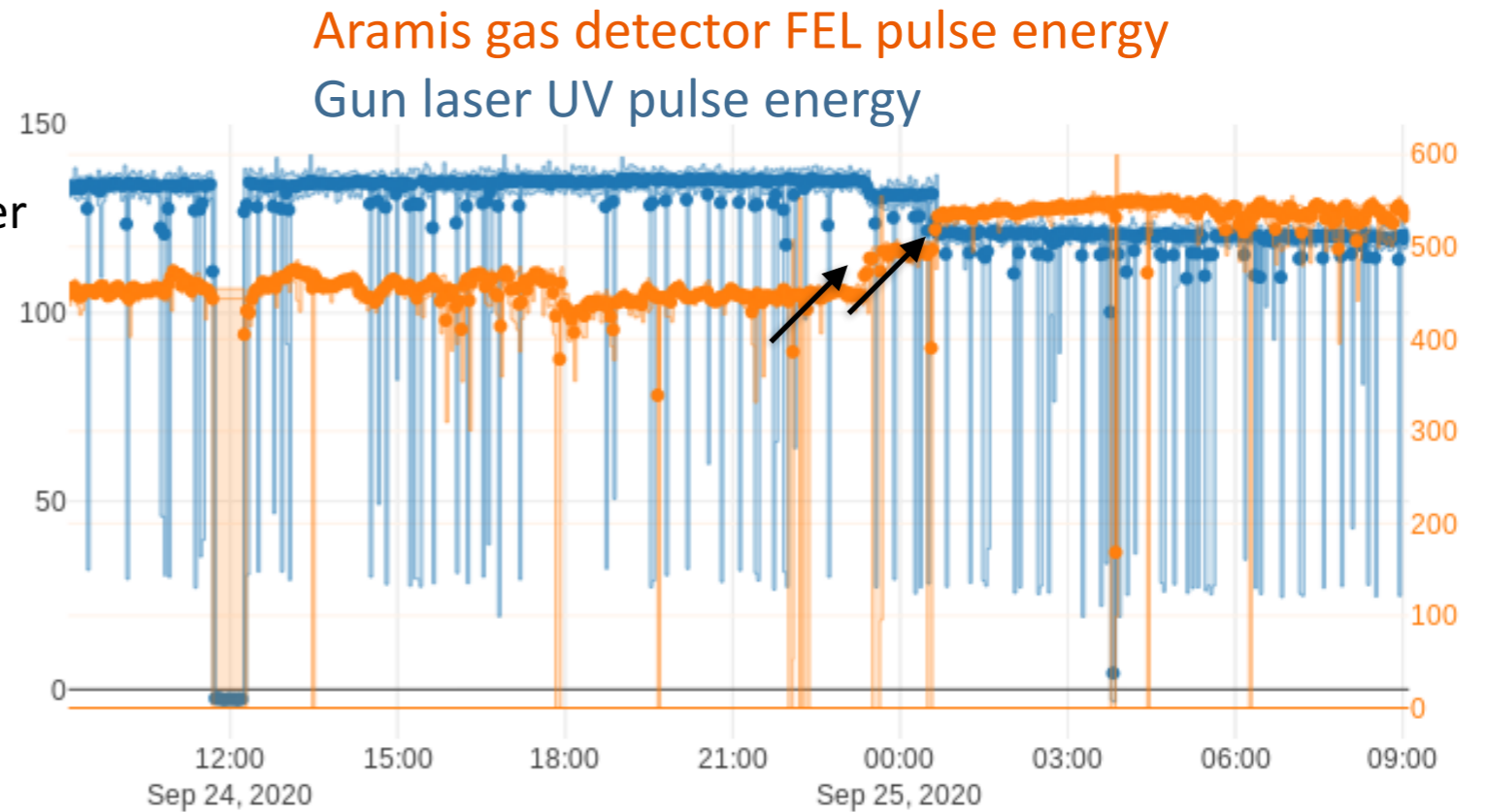
~2 h downtime due to a PSI wide power glitch  
RF Pikett had to manually turn some stations back on

Thur 24.9. 11:45-12:15 intervention to get heating elements out of the tunnel -> went smoothly

- Pointing Feedback was running on the Bernina position monitor (response not re-measured)
- PSICO mainly off (wish of users)

# Issue 1 - FEL signal suddenly increasing in steps

- 24.-25.9. during the night the FEL pulse energy increased in 2 steps while the laser UV pulse energy decreased -> profile on virtual cathode also changed
- charge was kept constant by the charge feedback -> we seem to extract more charge like this. Our current cathode in combination with the laser position on it might be right at the edge of an inhomogeneity.



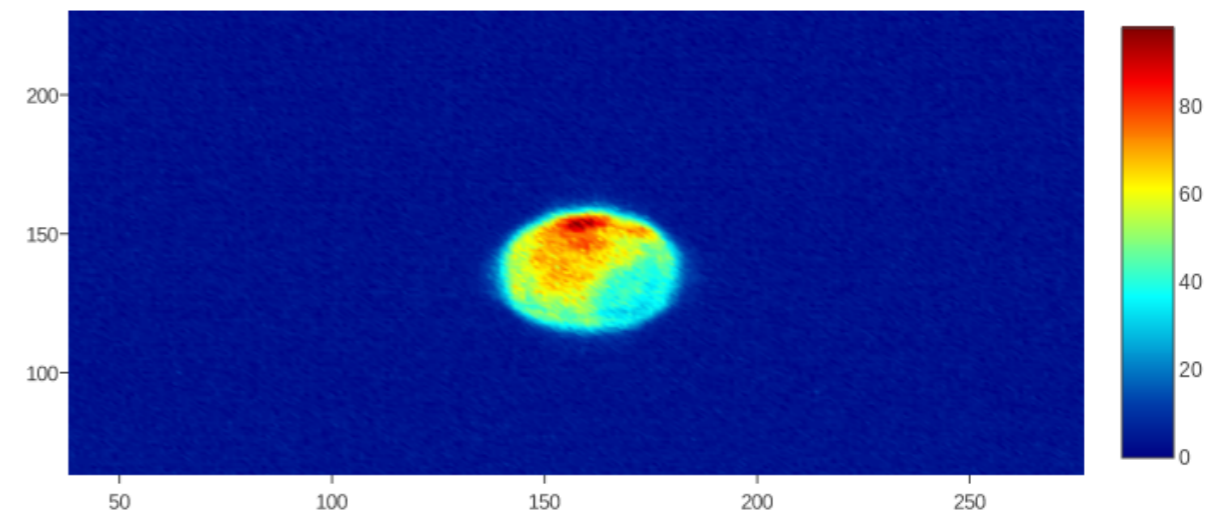
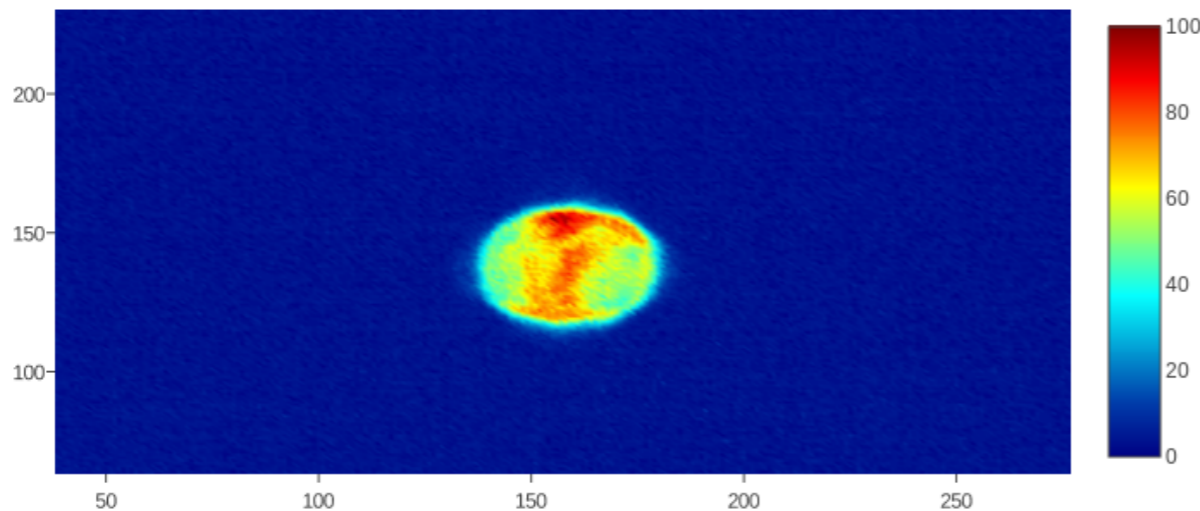
Date: 2020-09-24T23:15:19.157508770+02:00  
Pulseld: 12906508770

Date: 2020-09-25T00:55:48.462112010+02:00  
Pulseld: 12907112010

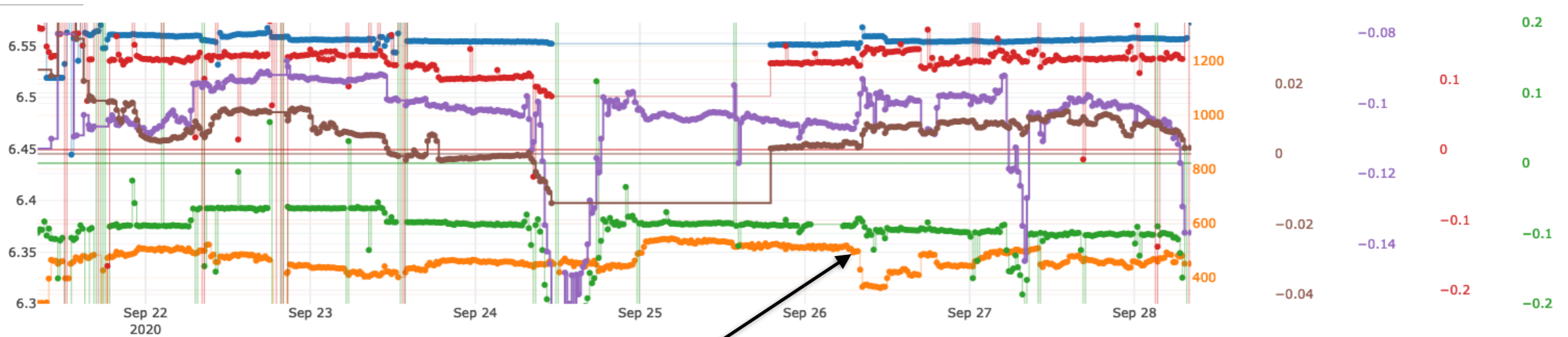
23:15

Laser profile on virtual cathode

0:55



# Issue 2: FEL Signal decreasing



- Relatively large drop in FEL pulse energy during a small energy change
- Looks like during this time the FEL pointing feedback that was looking at the beam position at the Bernina had to act quite a bit -> are there maybe some drifts/systematics in the Mono & the beamline?
- After discussion with the users -> kept the feedback on the Bernina position detector

FEL pulse energy  
 Photon energy  
 Gas detector x  
 Gas detector y  
 SARUN15 orbit target x  
 SARUN15 orbit target y

Controlled by  
 FEL pointing  
 Feedback

- **General:**

- Archiver bug that sometimes channels stop archiving -> Simon & Gaudenz are on it
- Bug in timing master application when sending both bunches to Aramis: <https://elog-gfa.psi.ch/SwissFEL+commissioning/16278> -> Roger Biffiger is on it

- A few LAM alarms

- **Aramis:**

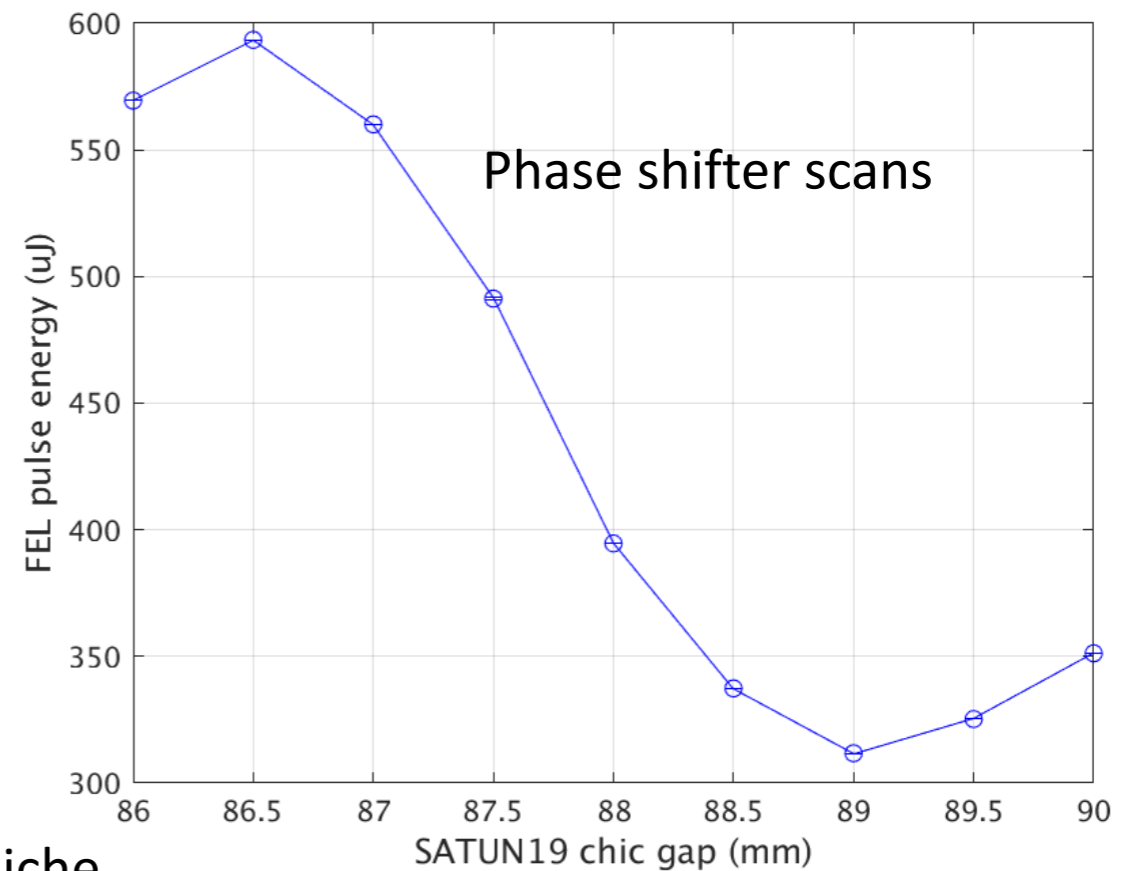
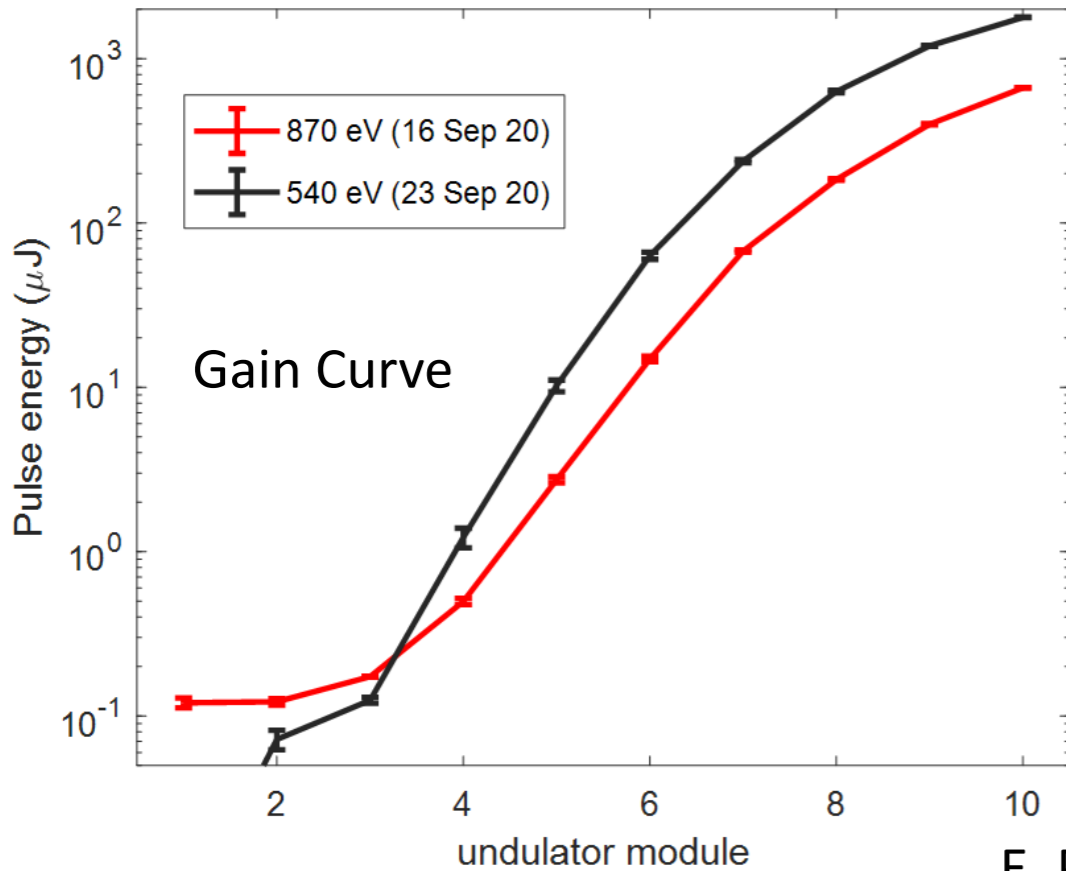
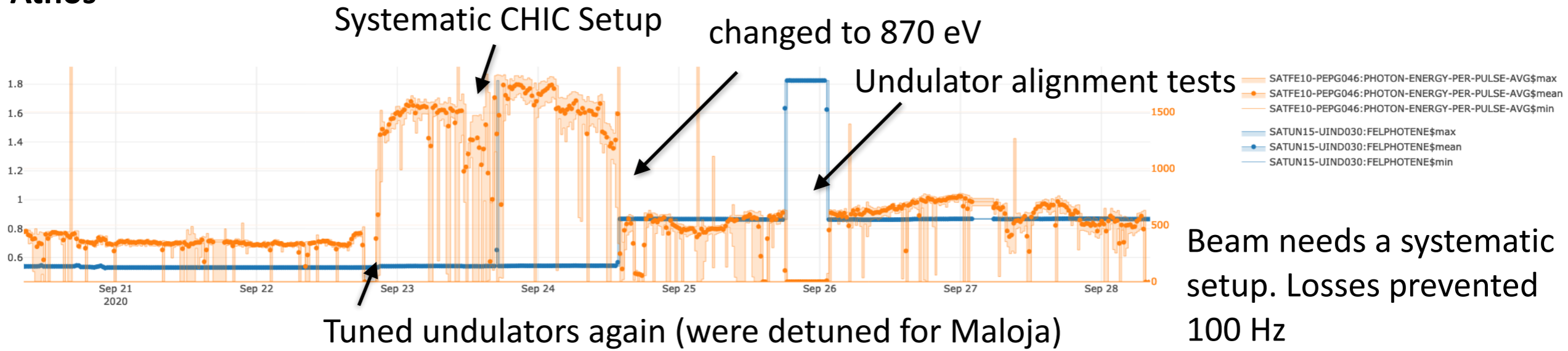
- Energy change script that locked mono to SARCL bend drove the bend to 0 A -> beam interruption (~30 min) <https://elog-gfa.psi.ch/SwissFEL+commissioning/16304>
- SARUN07 stuck

- **Athos:**

- Losses come and go -> some of it was caused by oscillations in the Mizar capillary IN feedback -> one of the piezos seems to have a non-linear response from time to time. Under investigation by the laser group <https://elog-gfa.psi.ch/SwissFEL+commissioning/16341>
- Charge integration was receiving invalid sensor data for a few minutes -> triggered soft-MPS
- SATUN15 top left array does not move

**Overall a rather calm week and the shift crews could handle most issues all by themselves.**

## Athos



E. Prat, S. Reiche