

FACET-II Status and Timeline

Mark J. Hogan / Senior Staff Scientist / FACET and Test Facilities Division Director

June 24, 2024

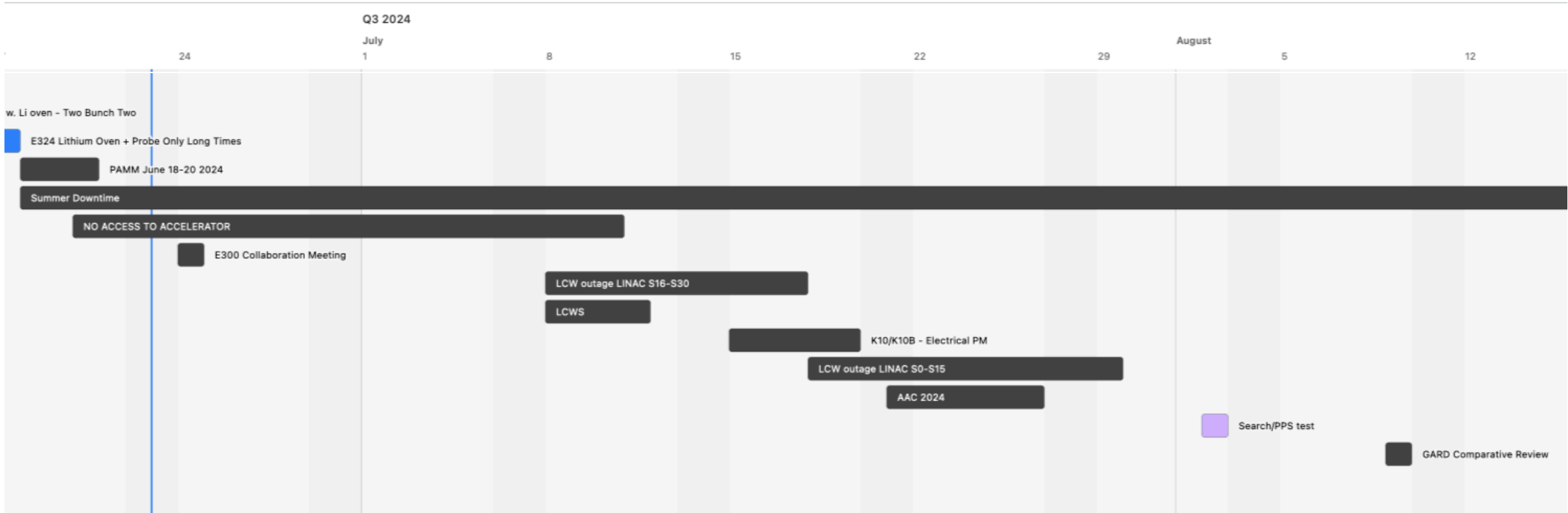
FACET-II Status & Outlook for the Next Few Months

- FACET-II turned off June 18th to start Summer downtime
- Expect to resume operations in the first week of October 2024 (Q1FY25)
- There are some restrictions to tunnel access so continue to coordinate with Ivan
- There is no rest for the weary:
 - AAC2024 in a month – let's confirm talks and posters today and also start thinking about our next publications (true for E-300 and broader User community)
 - SLAC (and LBNL, BNL, ANL, FNAL) GARD comparative review August 9th. Last was in 2018. Very important review for FACET-II!
 - We will have our annual FACET-II User meeting and PAC November 19-21, 2024
 - Gina Rameika (Head of DOE HEP) has promised there will be a review of Test Facilities (current and hoped for?) sometime this Fall. No charge or date yet.
 - DOE HEP FACET-II Program Manager has asked for a review of FACET-II operations in late January or early February 2025 – last was just July 2022

Brendan Will Keep Some Info in the AirTable Schedule

- ...but this doesn't have the same urgency when not running so again, check with Ivan before planning a visit

<https://airtable.com/appQBw2hPIktyi5Em/shrYdkbEVIZWNSF6W/tbIJF5kmRxxhALA8e>

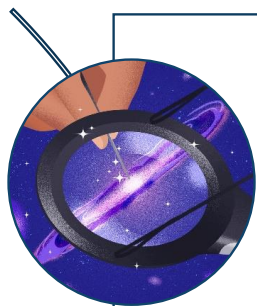


FACET-II Status & Outlook for the Next Few Months

- Undergraduate summer interns arriving today (meet & greet during lunch)
- Plans for summer downtime include, but are not limited to:
 - Investigating sources of drift, jitter and develop feedbacks (single & two-bunch)
 - What improvements to existing diagnostics are needed or where do we need new ones?
 - Start-to-end simulation workflow for injector-linac-IP-plasma-spectrometer-dump (will UCLA HR ever let Thamine come to SLAC Warren?)
 - Restore RF to Transverse Deflecting Cavity in L3 (after BC14)
 - Replace Li oven
 - Improve laser probe lines (E-308 and E-310)
 - Data analysis
- Take stock of where we are vs. what we promised in TDR and what is needed for physics programs (be quantitative)
- Jerry, Brendan and I will work with FACET-II team to develop a plan and discuss in meetings later this summer – today's focus is on on progress to date and AAC2024 prep

We Have HEP support and it is up to us to keep it!

FY 2025 Request Highlights



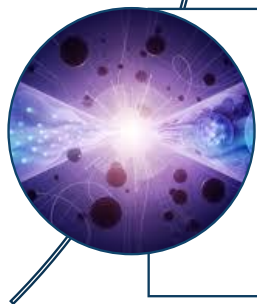
Research \$395.8M (-\$30.4M, -7.1% from FY 2024 Enacted)

- **\$24M increase** for AI/ML. **\$8M increase** for RENEW and FAIR
- **\$4M decrease** as Accelerate Innovations in Emerging Technologies concludes
- QIS, Microelectronics, Advanced Computing, and Accelerator Science and Technology continue at the FY 2024 Enacted Level
- **\$59.9M decrease** to Core Research. Focus support on high-profile research topics and early research results; key contributions and critical U.S. commitments to experiments & projects; University research & training; other priority cross-cutting initiatives



Facilities Operations \$381.7M (+\$33.2M, +9.5% above FY 2024 Enacted)

- **Fermilab Accelerator Complex** \$166.9M (+\$25.3M, +17.9% above FY 2024 Enacted): 5,180 hours
- **SLAC FACET-II** \$17.6M (+\$1.1M, +6.9% above FY 2024 Enacted): 3,120 hours
- U.S. LHC Detector Operations \$57.3M (+\$4.5M, +8.5% above FY 2024 Enacted)
- Vera Rubin Operations \$33M (+\$2.1M, +6.7% above FY 2024 Enacted)
- Sanford Underground Research Facility \$35M (No change from FY 2024 Enacted)



Projects \$453.2M (+\$28.0M, +6.6% above FY 2024 Enacted)

- **LBNF/DUNE** \$280M (+\$25M, +10% above FY 2024 Enacted to support LBNF/DUNE's five subprojects)
- **ACORN** \$10M (+\$5M, +100% above FY 2024 Enacted)
- **CMB-S4** \$4.5M (level funding from FY 2024 Enacted)
- **ATLAS and CMS Detectors** \$33.7M (-\$2M, -6% below FY 2024 Enacted): as per the baselined profiles
- **PIP-II** \$125M (level from FY 2024 Enacted): continue support for baseline profile

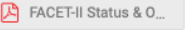













Agenda

Please be cool and add your slides to the Indico site so we have a record and for those in Europe or with other commitments that cannot fully participate today

<https://indico.slac.stanford.edu/event/9021/>

Description Zoom link: <https://stanford.zoom.us/j/98729080451?pwd=nmvNA0NYBLVJV8h870YmaUeNFe4mVI.1>

Meeting notes: https://docs.google.com/document/d/1XL0sg4-CyxAetpYad_aAIB9QaBfEub4h-khZPlx8ZXE/edit?usp=sharing

09:00	→ 09:15	FACET-II status and timeline Speaker: Mark Hogan (SLAC) 	15m	
09:15	→ 09:40	Single bunch drive to wake results Speaker: Robert Ariniello (SLAC)	25m	
09:40	→ 10:05	2 bunch beam delivery Speaker: Nathan Majernik (SLAC)	25m	
10:05	→ 10:30	EOS, bunch spacing, feedbacks Speaker: Alexander Knetsch (SLAC)	25m	 
10:30	→ 10:50	Coffee	20m	
10:50	→ 11:20	Plasma source performance, drive and witness emittance measurements, accelerated charge, oven Speaker: Doug Storey (SLAC)	30m	
11:20	→ 11:40	Studies on beam-breakup instability using E300 data Speaker: Ole Finnerud (Oslo)	20m	
11:40	→ 12:00	Betatron radiation results Speaker: Sebastien Corde (LOA)	20m	
12:00	→ 13:00	Lunch	1h	
13:00	→ 13:30	Lithium Oven Speaker: Ken Marsh (UCLA)	30m	
13:30	→ 14:00	Update on start to end simulations Speaker: Claudio Emma (SLAC)	30m	
14:00	→ 14:30	Updated analysis for E-300 and E-304 Speaker: Chaojie Zhang (SLAC)	30m	
14:30	→ 15:00	Plans and needs for next run Speaker: Chan Joshi (UCLA)	30m	