

FY22 FACET-II Run Part Two

Last update: March 23rd 2022

The table on page 2 represents the best guess of beam availability (as of the date at the top of this page).

Configurations:

Beam time starting April 2022 will be used to deliver the high peak current, single bunch beam configuration to users.

Nominal beam parameters in sector 20:

- Electrons
- 0.7 to 2 nC bunch charge
- One bunch
- 9 GeV beam energy
- Bunch length < 100 μm (nominal 20 μm)

Prior to April, beam time will be available to experiments in the Injector and early stages of the Linac plus to experiments in sector 20 for check out activities.

Additionally, machine development time throughout the user run will be used to develop new configurations with user support.

PAMMs/Accesses:

We will have “Planned Access for Machine Maintenance” (PAMM) days for installation and set-up work. Work is tightly coordinated and needs to be planned in advance. [Experimenters are asked to inform us for work that needs to be done in access conditions as far in advance as possible so they can be put on the access schedule.](#) Detailed plans for the work are required a week before the work is scheduled. We will evaluate the time and duration of the access based on the requests and programmatic need.

Please refer to the FACET-II FAQs for how to submit PAMM jobs:

<https://facet-ii.slac.stanford.edu/faq/exp-setup#PRE-PAMM>

Goal-based Schedule:

We will deliver to experiments when the beam is fully characterized and in good shape for delivery.

Please refer to the FACET-II FAQs for what you need to do before, during and after your beam time:

<https://facet-ii.slac.stanford.edu/faq/exp-running#GUIDE-TO-BEAMTIME>

We present Part Two of the FY22 FACET-II Run up to the end of May. Please note, the experiments are shown by week and the order is numerical, not in order of anticipated beam delivery. The day-to-day running schedule will be communicated close to beam delivery. Further beam time will be available in June and July and there is float each week to add more shifts. Requests for further beam time welcome based on analyses of previous shifts.

#	Week	Group	Number Shifts	Goals
-	Mar 01 – Apr 20	E-300	2	Laser-beam coarse timing, dump diagnostics checkout with beam, EOS with ZnTe
		E-320	3	Optimization of remote laser alignment procedure with attenuated and unattenuated laser.
		E-327	1	ML injector emittance optimization at 2nC
		E-331	1	ML injector emittance optimization at 2nC
PAMM 21st April				
1	Apr 22 – Apr 27	E-305	1	Alignment and synchronization of electron beam to ionization laser
		E-308	1	Plasma checkout (no ebeam), Laser/plasma/e-beam spatiotemporal overlap
		E-320	1	Optical diagnostics and alignment checkout, testing laser-electron overlap
		E-332	1	NFCTR effect of a single foil with different materials and thicknesses
2	Apr 28 – May 03	E-305	2	Shadowgraphy image of electron beam signature, Plasma interaction signatures for different density regimes (filamentation to blowout)
		E-308	1	Demonstration of controlled e-beam focusing with thin plasma lens
		E-332	1	Steering effect of NFCTR with tilted foil/Al wedge and tilted beam (TCAV), Vary beam parameters to measure NFCTR under different conditions
		E-320	0.5	Commissioning EDC screen parasitic with E-332
PAMM 4th May				
3	May 05 – May 11	E-300	2	Drive bunch depletion, diagnostics
		E-324	1	Check structure and stability of laser produced plasma, measure it's radial size vs laser energy and probe time delay from - ~ps to 1ns.
		E-325	1	S20 TCAV studies
4	May 12 – May 17	E-300	2	Drive bunch depletion, diagnostics
		E-324	2	Record probe diffraction patterns for beam-probe delays of ns, μ s ms and longer at fixed density. Conduct scan of laser to ebeam misalignment.
		E-327	1	Demo 2D LPS data taking shift + model training (offline) Run + Bayesian Exploration on LPS
		E-331	1	Demo 2D LPS data taking shift + model training (offline) Run + Bayesian Exploration on LPS
PAMM 18th May				
5	May 19 – May 24	E-300	1	Drive bunch depletion, diagnostics.
		E-324	2	Check optical thru-put of plasma column at new E-324 20 mrad probe-plasma inter-section angle as a function of density. Record probe diffraction patterns for beam-probe delays of ns, μ s ms and longer at fixed density.
PAMM 25th May				
6	May 26 – Jun 01	E-305	1	Shadowgraphy-with-mask image of electron beam signature
		E-308	2	Demonstration of controlled e-beam focusing with thin plasma lens
		E-320	1	Parameter scans of electron-laser collisions (gamma and electron scaling)
		E-332	1	Steering effect of NFCTR with tilted foil/Al wedge and tilted beam (TCAV), Vary beam parameters to measure NFCTR under different conditions

7	Jun 02 – Jun 07	E-305	2	Plasma interaction signatures for different density regimes (filamentation to blowout), Filamentation in solid targets with different materials/thicknesses
		E-300	2	EOS-BPM commissioning with ZnTe
		E-320	1	Parameter scans of electron-laser collisions (gamma and electron scaling)
PAMM 8th June				
8	Jun 09 – Jun 16	E-300	1	EOS: E beam timing jitter measurement with GaP.
		E-320	3	Beam tuning, parasitic background measurements
		E-327	1	Demo 2D LPS data taking shift + model training (offline) Run + Bayesian Exploration on LPS
		E-331	1	Demo 2D LPS data taking shift + model training (offline) Run + Bayesian Exploration on LPS