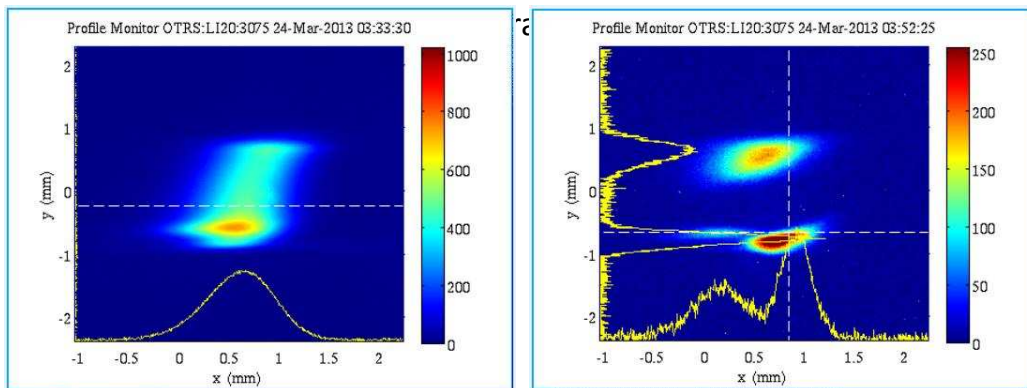


FACET Summary Mar 23-29

- Sat 23th
 - Notch collimator for the plasma wake-field experiment (E200) was checked out. Seems to be ok.
 - Continued Linac emittance tuning. Optimized Li18 emittance by scanning setpoints for the li11 feedbacks.
 - Some more work on checking alignment for the E201 experiment (small dielectric tubes). Finding the beam spot on the upstream and downstream OTR screens. Brief access to install a more sensitive pyro detector for the E201 experiment.
 - Recover beam and deliver to E201. They see some signals and take data. Need to analyze. The tube size was 400 μm dia.
 - Start work on commissioning the XTCAV. Timing setup.
- Sun 24th
 - Continue work on commissioning XTCAV. See streaks. Also tested notch



- (a) Streaked bunch (remember this is the pencil beam $\sim 0.5\text{-}1$ mm long).
- (b) Notch collimator inserted.
- Checked BBA for some of the quads in Li20. Offsets reproduced. No further corrections required.
- Put in the staggered chirp in sectors 2-10 (increasing negative phase values on the klystrons). This is the full beam compression setup to minimize the bunch length.

FACET Summary Mar 23-29 (pg 2)

- Mon 25th
 - Worked on minimizing Linac emittance and IP spot size. 16 IP spot size measurements in a row give an X size of 38.5 +/- 7.7 um and 34.2 +/- 4.5 um. Some scatter in measurement from noisy floor. Emittance is more difficult to minimize with full chirp on. Seem to have a very large energy spread. Perhaps over-compressed? Shifted the phases of Li11-19 more negative removing BNS damping settings used for pencil beam. Not really needed for compressed beam. Result is a much smaller beam size on the positron extraction line monitor but a much larger beam size at the IP and large emittances at Li18. Try to get a bunch length measurement but are unsuccessful. Diagnostics do not seem to be working. XTCAV not quite ready for prime time.
- Tue 26th
 - Longitudinal space not looking correct yet. Further work is needed. Started program of checking phases of all klystrons. Found many klystrons with 10-20 deg. phase errors. Decided we will need to check klystron phases more often. Last phase check was about 3 weeks ago.
- Wed 27th
 - PAMM. Very long PAMM. Moved the QS1 and QS2 quads in X. Fixed two bunch length diagnostics during access. Search and lockout did not occur until after 9pm. Machine recovery slow.
- Thu 28th
 - Continue machine recovery on owl and day. XTCAV closer to being used as a regular diagnostic but there is still a fairly complicated procedure to get a measurement. Plan to improve this soon. Continue to tune up the Li20 chicane optics as well as the compression and the Linac emittance.
 - Current bunch length is about 40 um on a fairly regular basis.
- Fri 29th
 - Continue tuning. Li04 Y emittance is too large by about a factor of 2. There is some vertical dispersion in the Li20 chicane. Configurations for various optics and waists constructed. Procedures on how to use the diagnostics and for tuning the Linac are being written. Current emittance measurements (cm-mrads):

			EMITX	BMAGX	EMITX*B MAGX	EMITY	BMAGY	EMITY*B MAGY	AGE (hrs)
3/29/13 14:22	LI02		2.931	1.033	3.028	0.21	1.098	0.231	9.519
20.35 GeV, 9.67e+09 Nel	LI04		2.431	1.014	2.466	0.277	1.578	0.438	3.451
	LI11		3.398	1.126	3.827	0.312	1.061	0.332	1.855
	LI18		5.753	1.081	6.22	0.849	1.172	0.996	1.693