FACET Summary Mar 16-22

- Sat 16th
  - CERN BBA user shift.
  - Continue Low beta machine studies for LI20 chicane.
  - Vacuum in NRTL still looks good. Best it has been for months. Fabrication of a replacement chamber is underway.
  - Ballistic study of LI20 chicane. Found we need to increase the strength of the B2 bend magnets by 1.3% in order to get the beam through the chicane when all magnets are turned off except for the B1, B2 and B3 magnets. Also find a vertical dispersion point near the first B2 magnet. This has been seen before.
- Sun 17th
  - CERN BBA user shift. Continue with ballistic studies of LI20 chicane. Investigation of the anomalous dispersion seen in the chicane the night before was revealed to be roll in the BPMs located in the chicane. Did BBA of as many quads in the chicane as we could. Most corrections to quad locations were small (<0.3 mm). The largest was 1 mm in x for quad 2445. Quick measurement of the ballistic energy aperture found a 1% value. Turned on quads and standardized.
- Mon 18th
  - Collected BBA data for the final focus quads. Analyzed the data to obtain offsets. Worked on improving the vertical dispersion in the chicane and found that lowering some corrector strengths enabled us to flatten the vertical dispersion down to below 10 mm. Needs to be better, but this is a good improvement. Tried to find the centers of SQ1 and SQ2 (spectrometer quads after the IP) and were not successful.
- Tue 19th
  - QS1 and QS2 BBA data obtained and analyzed. Offsets put into the database. Waist move knobs implemented and studied. Chicane optics and orbit look unchanged. Waist was moved from MIP to USOTR (2.413 m change).
- Wed 20th
  - QS1 and QS2 BBA data obtained and analyzed. Offsets put into the database. Waist move knobs implemented and studied. Chicane optics and orbit look unchanged. Waist was moved from MIP to USOTR (2.413 m change). Access to the experimental area in the afternoon to fix a camera. First users of uncompressed “pencil” beam. Emittances before and after:

FACET Summary Mar 16-22 (pg 2)

- Wed 20th
  - Emittances before (17:03) (cm-mrads):

	EMITX	BMAGX	EMITX*BMAGX	EMITY	BMAGY	EMITY*BMAGY	AGE (hrs)
LI02	3.303	1.034	**3.416**	0.26	1.156	**0.301**	0.81
LI04	2.534	1.066	**2.702**	0.372	1.1	**0.41**	0.551
LI11	3.811	1.022	**3.895**	0.348	1.04	**0.362**	0.451
LI18	5.787	1.076	**6.227**	0.813	1.017	**0.827**	0.321

  - After (21:27):

LI02	2.743	1.02	**2.798**	0.283	1.044	**0.296**	1.027
LI04	2.534	1.066	**2.702**	0.423	1.008	**0.427**	4.951
LI11	3.867	1.063	**4.111**	0.334	1.032	**0.345**	0.317
LI18	6.121	1.033	**6.324**	1.217	1.032	**1.256**	0.116

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- Thu 21st
  - PAMM. Tightened a vacuum flange and fixed a leak at the XTCAV. Experimental access took longer than expected. Searched LI19-20 at midnight. Did PPS certify of the XTCAV system. We can now start trying to turn it on when vacuum looks good enough.
- Fri 22nd
  - Recovered the beam and prepared for users. Vacuum in XTCAV system has occasional gas bursts but is settling down. Turned on RF and processed XTCAV. Moved final focus to the kraken chamber for the 201 experiment. Had to re-steer the beam to the line established before yesterday's PAMM. Presently not understood. Emittances just before the experiment started:

	EMITX	BMAGX	EMITX* BMAGX	EMITY	BMAGY	EMITY* BMAGY	AGE (hrs)
LI02	3.739	1.011	**3.781**	0.251	1.051	**0.264**	3.707
LI04	2.777	1.074	**2.983**	0.467	1.239	**0.579**	3.697
LI11	4.281	1.054	**4.513**	0.264	1.084	**0.287**	3.751
LI18	6.941	1.015	**7.046**	0.537	1.05	**0.564**	0.749

  - Beam went successfully through the tubes of the experiment but they were not able to see the Cherenkov signal.