RTML upgrade: Sept. 2008

Effect of cavity RF kick and Wakefields on emittance budget in RTML still the biggest concern. Very preliminary results are obtained for two-stage BC in scenario of $9 \rightarrow 0.3$ mm compression in PLACET (see below)

- Need verify and cross-check results with other codes
- Simulate for baseline BC scenario $6mm \rightarrow 0.3mm$

	9→1	mm	1 -	→ 0.3 mm	า			
		RF	Kick +	- Wakes				
	BC1		BC2			ML		
	old	new	old	new	$_{\mathrm{alt}}$	old	new	$^{\mathrm{al}}$
no correction	1.55	95.88	4.89	7130.1	1971.2	50.54	7405.25	634
1-to-1 correction	1.20	15.03	0.95	53.06	22.68	0.16	11.64	0.9
1-to-1 disp free	0.40	15.03	0.95	45.59	19.08	0.11	3.26	0.2

Couplers' RFKick+Wakes <u>do not seem to be a problem</u> in BC1, BC2 and ML

Note that the final emittance growth in the ML when one includes *both RF-Kick and wakefield kick* is smaller (0.11 nm) than the final emittance growth due to only the wakefield kick (0.4 nm).

Progress in Single Bunch Compressor Design and Vacuum System design

- Single-stage compressor design in progress
 - Optics are completed
 - Added addition cryomodules to accelerate beam after BC from 5 to 15 GeV
 - Matched both sections
 - Simulation emittance growth due to cavity RF kick and wakes in progress. Cross-checking PLACET vs. LUCRETIA.
 - Tuning studies is next step
- Vacuum system for return line conceptual design is done. Effect of wakefields in vacuum chamber in progress