

# Goals at this meeting

Toward the first goal, i.e. achievement of 37nm vertical beam size, we would like to focus on two major issues of the wakefield and vertical emittance growth keeping in mind that there are other issues such as multipole fields in the quadrupole magnets, electron/laser beam jitters etc. .

The primary goals are identification of sources for the wakefields and emittance growth and establishment of the mitigations.

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15th ATF2 Project Meeting, KEK, 1/23-25, 2012



Just reminder ; all in vertical direction

$$(\Delta \sigma)^2 = (\eta \delta)^2 + (\xi \delta \sigma_0)^2 + \dots$$

$$\sigma_0 = 37\text{nm} \quad \text{and} \quad \delta (\text{energy spread}) = 0.0008$$

when  $\Delta \sigma < 5 \text{ nm}$ ,

$$\eta < 2 \mu\text{m}$$

$$\xi < 52$$

$$\varepsilon = 15 \text{ pm} \quad \sigma = 39\text{nm}$$

$$\varepsilon = 20 \text{ pm} \quad \sigma = 45\text{nm}$$

$$\varepsilon = 30 \text{ pm} \quad \sigma = 55\text{nm}$$



# Session Organization

15th Mtg.	23rd Jan., 2013 Wednesday	24th Jan., 2013 Thursday	25th Jan., 2013 Friday
9:30  12:00	<p><b>Introduction</b> greeting, brief status and goal at this meeting</p> <p><b>Alignment&amp;LINAC, DR</b> 2012.12.7 earthquake, KINAC and DR operation, optics, emittance alignment at all beam lines</p>	<p><b>Major issues &amp; mitigations (2)</b> New LW at DR, Emittance at EXT, coupling correction, turn by turn BPM data analysis, and emittance reconstruction with the M-OTR</p>	<p><b>Towards the 1st goal</b> multipole field errors, beam jitters, coupling correction, orbit analysis, reports from the operators and summary &amp; plans.</p>
13:30 16:00(Fri)  16:10 17:30(Fri)	<p><b>Instrumentation</b> IPBSM, BPM system and M-OTR</p> <p><b>R&amp;D at DR</b> Cavity Compton</p> <p><b>Major issues &amp; mitigations (1)</b> Cavity BPM effect, the calculation and measurements, wakefield effect</p>	<p><b>15th TB/SGC Meeting</b> Opening and status reports of the KEK/LAL Cavity Compton, ATF2 status/plan, LW status/plan, FONT status/plan, and Discussions Charge of ATF2 review by GDE</p>	<p><b>ATF operation meeting</b> for 14:30 - 15:30</p> <p><b>Status for the 2nd goal</b> IPBPM : electronics, design, production, IP new chamber, FONT for IP feedback and milestones/schedule until the installation <b>18:20 - Banquet</b></p>



# ATF-2 Draft Review Charge by GDE

15-Jan-13

The KEK Accelerator Test Facility (ATF) program, which includes both beam tuning tests made in the original damping ring complex and experiments made in the new 'ATF-2' beam-delivery beamline, is aimed in part toward specific ILC GDE performance targets. This is intended to be a review of the ATF program as it applies to the ILC GDE performance targets.

The two primary goals are listed in the GDE 'Technical Design Phase R & D Plan', Release 5 (08.08.2010, EDMS \*813385) as:

1. Achieving a vertical beam size of 37 nm at the focal point.
2. Stabilization of that beam to nanometre levels (over various time scales).

The purpose of the GDE review of ATF is to:

- 1) Evaluate and comment on progress made toward achieving the goals.
- 2) Comment on lessons-learned at the ATF beam test facility for the ILC complex and how these may be included in the ILC design.
- 3) Assess the readiness of the ATF complex toward achieving the goals, including, for example, understanding of beam dynamics and expected instrumentation performance.
- 4) Evaluate and comment on future plans.