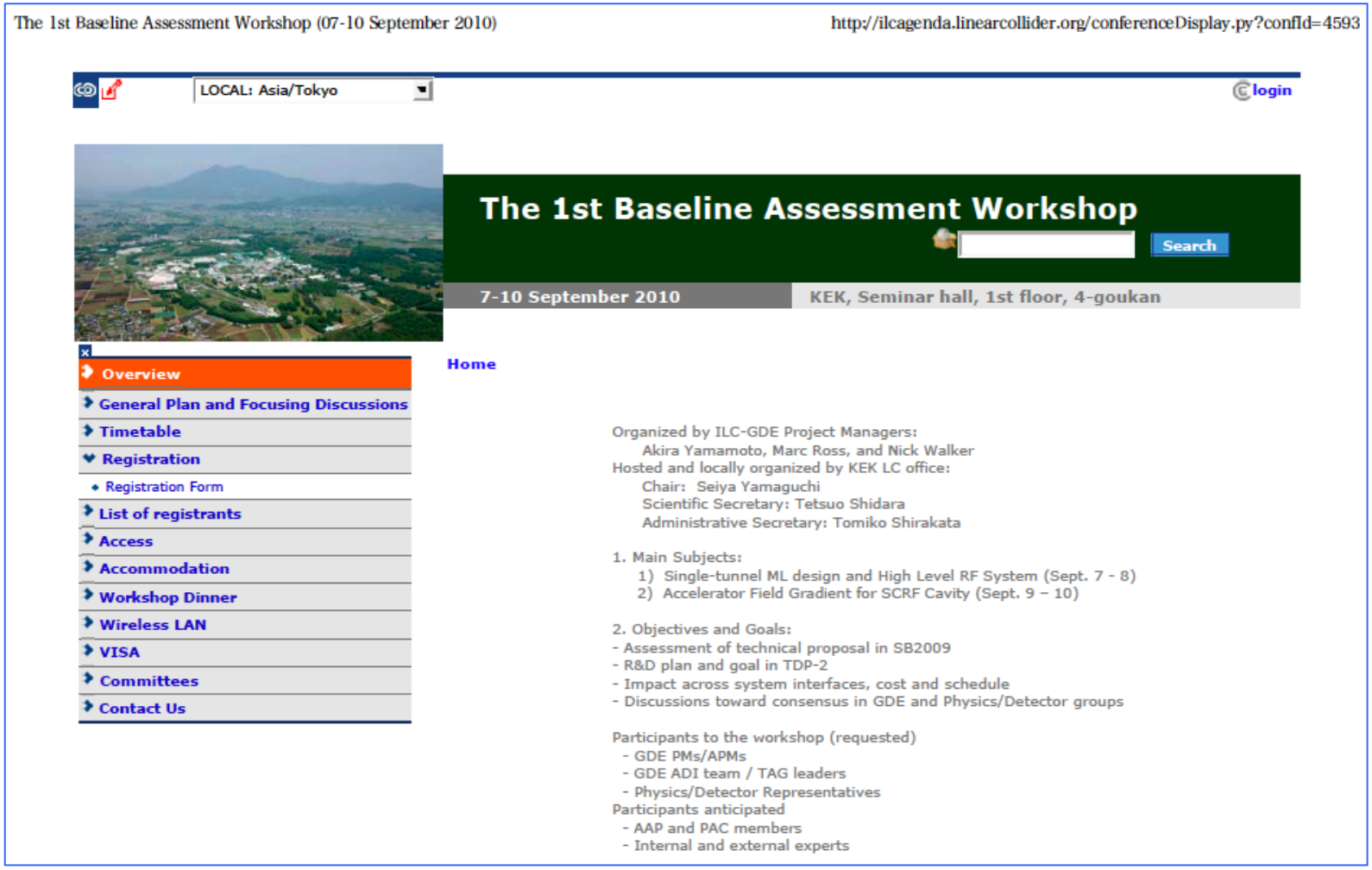
The 1st BAW Announcement

http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4593



Time-Table / Agenda (Sept. 9)

Day	Am/pm	Subject	Convener/presenter
9/9		Cavity: Gradient R&D and ML Cavity Gradient	R. Geng/A. Yamamoto
	9:00	Introduction and Current Status - Technical address for the 2nd part of WS - Overview from RDR to R&D Plan 5 - Progress of cavity gradient data-base/yield	Chair: M. Ross - A. Yamamoto - R. Geng - C. Ginsburg
	10:45	R&D Status and further R&D specification - Fabrication, testing, & acceptance for XFEL/HG - R&D expected in cooperation w/ vendors - R&D w/ a pilot plant w/ vendor participation	Chair: E. Kako - E. Elsen - M. Champion - H. Hayano
	13:30	Short-tem R&D and Specification - Field emission and strategy to settle … - Gradient, Spread, Q0, Radiation: R&D specification, standardization	Chair: R. Geng - H. Hayano -
	pm-2	Long-term R&D ACD subjects and goals - Seamless/hydro-forming, Cavity shape variation, VEP, Thin Film, Large-grain, ..	Chair: R. Geng (Rongli to propose)

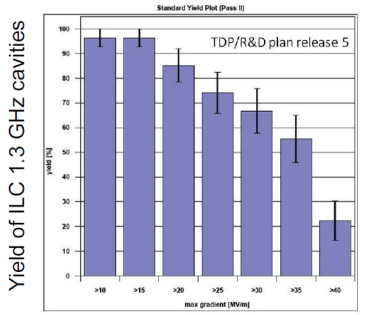
Gradient Progress Reported by Barry at ICHEP2010 Well Received by Community

Now the challenge is 90% yield by 2012

1. Beam Power Challenge

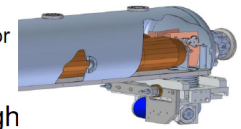
- Many critical technologies
  - Targets, collimators and dumps, materials, MPS, SCRF, …

Barry Barish, Saturday session



- LHC beam will be ~350 MJ
  - Beam collimation challenge!

Metallic collimator to reduce $Z_{\perp}$

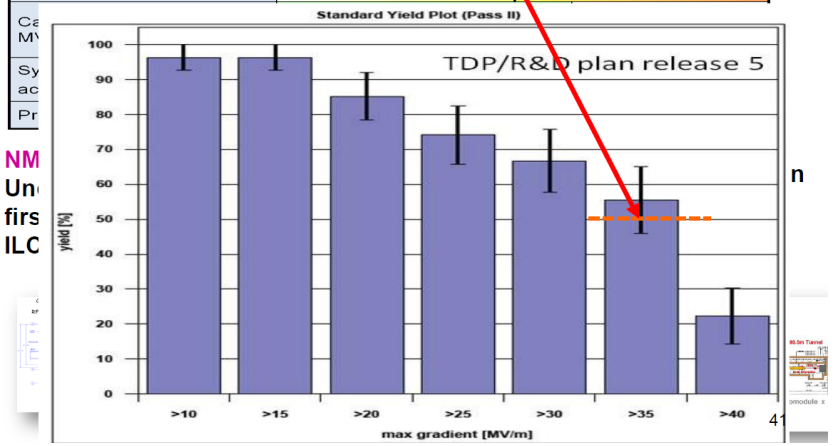


- SCRF → high power proton beams for a number of new applications:
  - Neutrino beams
  - Neutrino factory & Muon Collider
  - Accelerator Driven Systems (sub-critical reactors) and transmutation of waste

Tor Raubenheimer, ICHEP2010

Successful ILC Super Conducting RF developments in global collaboration

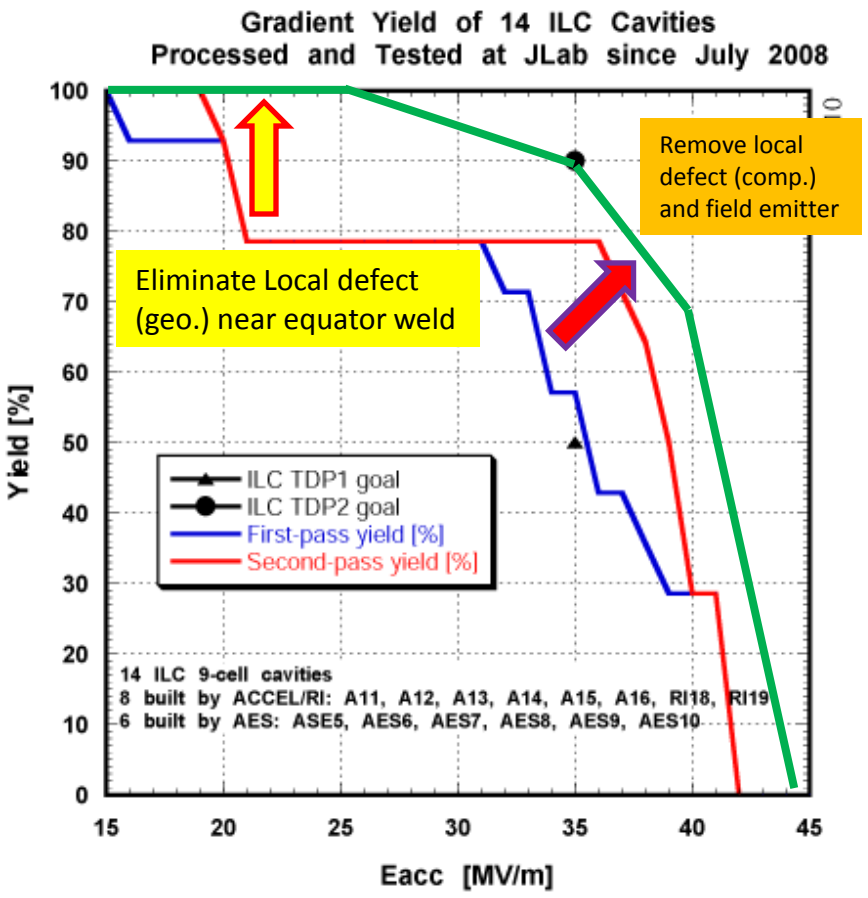
Year	2008	2009	2010	2011	2012
Phase	TDP-1		TDP-2		
Cavity Gradient in v. test to reach 35 MV/m	→ Yield 50%		→ Yield 90%		



J.P.Delahaye, ICHEP2010

Gradient Improvement Plan

Based on Recent Understanding due to Globally Coordinated S0 Program



- Highest priority is to push yield up near 20 MV/m – the yield drop due to local (geometrical) defects near equator weld.
  - **Fab. QA/QC**
  - **Mechanical polish prior to heavy EP**
  - **Post-VT local targeted repair**
  - Seamless cavity
  - Large-grain mat. From ingot slicing
  - Fine grain mat. Optimization
- Also high priority is to suppress field emission at high gradient (up to 42 MV/m) – and quantify its effect on cryogenic loss and dark current.

Time-Table / Agenda (Sept. 7)

updated: August 27

Day	Am/pm	Subject	Chair/presenter
9/7		Single Tunnel ML Design and HLRF -1	S. Fukuda / C. Nantista
	9:00	Opening and Introduction - Opening address - Report from AAP - BAW1 objectives and goals	Chair: S. Yamaguchi - A. Suzuki (KEK-DG) - E. Elsen - A. Yamamoto (GDE-PM)
	10:45	Single tunnel CF design and HLRF design - Single tunnel CF design status - General HLRF design in SB2009	Chair: T. Shidara - A. Enomoto - S. Fukuda
	13:30	HLRF KCS -KCS design and R&D status -Demonstration of feasibility	Chair: S. Fukuda - C. Nantista - C. Adolphsen
	15:45	HLRF: general - Experience from XFEL - RDR configuration (as backup) - Discussion	Chair: M. Ross - W. Bia - S. Fukuda - ALL

Time-Table / Agenda (Sept. 8)

Day	Am/pm	Subject	Convener/presenter
9/8		Single Tunnel ML Design and HLRF -2	S. Fukuda / C. Nantista
	9:00	DRFS -DRFS design and R&D status -Installation strategy	Chair: C. Nantista - S. Fukuda - S. Fukuda
	10:45	HLRF and LLRF -LLRF requirements/issues for KCS -LLRF requirements/issues for DRFS -Requirements from Beam Dynamics	Chair: T. Shidara - C. Adolphsen - S. Michizono - K. Kubo
	13:30	Operational consideration - Sorting cavities in relation with HLRF - Gradient and RF Power Overhead	Chair: C. Adolphsen - S. Noguchi - J. Cawardine
	15:45	Discussions and Recommendations - General discussions and questions - Summary and recommendations	Chair: A. Yamamoto - TBD - ALL

Time-Table / Agenda (Sept. 10)

Day	Am/pm	Subject	Convener/presenter
9/10		ILC accelerator gradient and operational margin	A. Yamamoto and J. Kerby
	am-1	Gradients from VTS to Operation - Overview on ILC gradient specification at each testing / operation step - Differences in test / operation cycles	Nick Walker - A. Yamamoto -TBD
	am-2	Gradient Comparisons -Gradient and Cavity Tilts; Other 'uses' of margin -Gradients in VTS, HTS, Cryomodules, Beam Ops	 -K. Kubo? -E. Elsen, E. Kako?
	pm-1	Cost Impacts - List of systems / technical components affected by gradient specification change - Reminder on cost effects	A.Y. & J. K. -J. Kerby -P. Garbincius
	pm-2	General Discussion and recommendation - General discussions - Summary and recommendations	PMs (AY, MR, NW) - All

Discussion Topics: Single-tunnel HLRF system in the 1st BAW, Sept. 7-8, 2010

- KCS: (Convener: Chris Nantista)
  - RF power margin required for cluster operation, including gradient spread, as consistent with cavity production strategy,
  - Tuning and control strategy, including impact on high gradient operation and required gradient operational margin
  - RF amplitude and phase performance tolerance within a cluster; allowed common-mode and normal-mode fluctuations,
  - R&D required, including demonstrations of component performance and demonstrations with small clusters
- DRFS: (Convener: Shigeki Fukuda)
  - Cavity and klystron sorting and resulting required RF power margins
  - Installation strategy; needed tunnel infrastructure and access
  - RF amplitude and phase performance tolerances, including gradient spread, as consistent with cavity production strategy,
  - R&D required in the remaining half of the TDP (and beyond) including radiation shielding, klystron lifetime, redundancy strategies
- Backups: (Convener: Shigeki Fukuda, as SCRF HLRF GL)
  - Original RF system in RDR, in single tunnel, just in case, as a backup,

Discussion Topics: Accelerating Gradient 1st BAW, KEK, Sept. 9-10, 2010

- Gradient Improvement Studies: (Convener: Rongli Geng)
  - Material/fabrication, surface processing, instrumentation and repair
  - Strategy to overcome 'quench', and 'field emission' and to maintain moderate cryogenic load,
  - Strategy to define and specify 'Emitted Radiation', (Radiation that may result in increased cryogenic-load and usable gradient limitations),
  - Improvement of gradient and achievement of adequate yield,

- Strategy for Accelerating Gradient in the ILC: (Convener: Akira Yamamoto)
  - Overview and scope of 'production yield' progress and expectations for TDP, including acceptable spread of the gradient needed to achieve the specified average gradient,
  - Specifications of Gradient, Q0, and Emitted Radiation in *vertical test*, including the spread and yield,
  - Specifications of Gradient, Cryogenic-load and Radiation, including the gradient spread and operational margin with nominal controls, in *cryomodule test*,
  - Specifications of Gradient, Cryogenic-load and Radiation, including the gradient spread and the operational margin with nominal controls in *beam acceleration test*,
  - Impact on other accelerator systems: CFS, HLRF, LLRF, Cryogenics, and overall costs.