

# ML-SCRF: Monthly WebEx Meeting

## Nov., 21, 2012

### 1. Reports from PMs

- GDE activity and meeting plan
- GDE-LCWS

### 2. Reports from TA Group Leaders

- Cavity, Cavity Integration, Cryomodule, Cryogenics, HLRF, ML

### 3. Discussions on TDR Status and PAC

- TDR Status J. Carwardine
- TDR1 and 2, SCRF A. Yamamoto
- TDR Cost Review G. Dugan/A. Yamamoto
- PAC M. Ross

# KEK-LC: FY2012~13 Plan

月	LC定例	GDE / International
10	1, 8, 15, 22, 29	8-12: ASC-12 @ Portland 22-26: LCWS @ Arlington 28-29: IEEE-NSS @ Anaheim
11	5, 12, 19, 26	5-8: TTC (JLab) 13-14: GDE Cost Review (Fnal) 14-16: Higgs factory WS (Fnal)
12	3, 10, 17, 24	13-14: ILC-PAC (KEK) 15: LC Symposium (Tokyo)
1	7, 14, 21, 28	1E: Ext. Cost-Review (LAL-Orsay)
2	4, 11, 18, 25	21-22: ICFA/ILCSC (Vancouver) : Transition to the next organization
5		13~17: IPAC (Shanghai) 27-31: ECFA-LC 2013 (DESY)
6		12 ILC Event (KEK, CERN, Fnal) at 5:00 pm
9		22-27: SRF2013 (Paris)
11		11-15: LCWS-2013 (Tokyo)

# LCWS 2012

- **LCWS12:** International Workshop on Future Linear Colliders 2012
- Dates: Oct. 22 ~ 26
- Held at: Arlington, Texas
  - <http://www.uta.edu/physics/lcws12/>
  - Accommodation
    - <http://www.uta.edu/physics/lcws12/pages/accomodation.html>
- Program
  - 22(Mon): Joint plenary, Accelerator plenary
  - 23(Tue): ILC-CLIC Common issues
    - am: Emittance preservation, Power consumption
    - Pm1: System tests, and cost & schedule
    - Pm2: [Higgs Factory session](#) (Joint session of accelerator and physics)
  - 24(Wed): Accelerator: CLIC & ILC separate programs
    - Finalizing TDR
  - 25(Thu): Working Groups: Parallel Sessions
    - [SCRF/NCRF >> Convener H. Hayano](#)
  - 26(Fri): Accelerator plenary, Joint plenary (~ 13:00)

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## Welcome to the International Workshop on Future Linear Colliders



CLIC projects.

The 2012 International Workshop on Future Linear Colliders (LCWS12) will be hosted by the University of Texas at Arlington. The workshop will be held on Oct. 22 - 26, 2012 on the campus of the University of Texas at Arlington, Texas, USA.

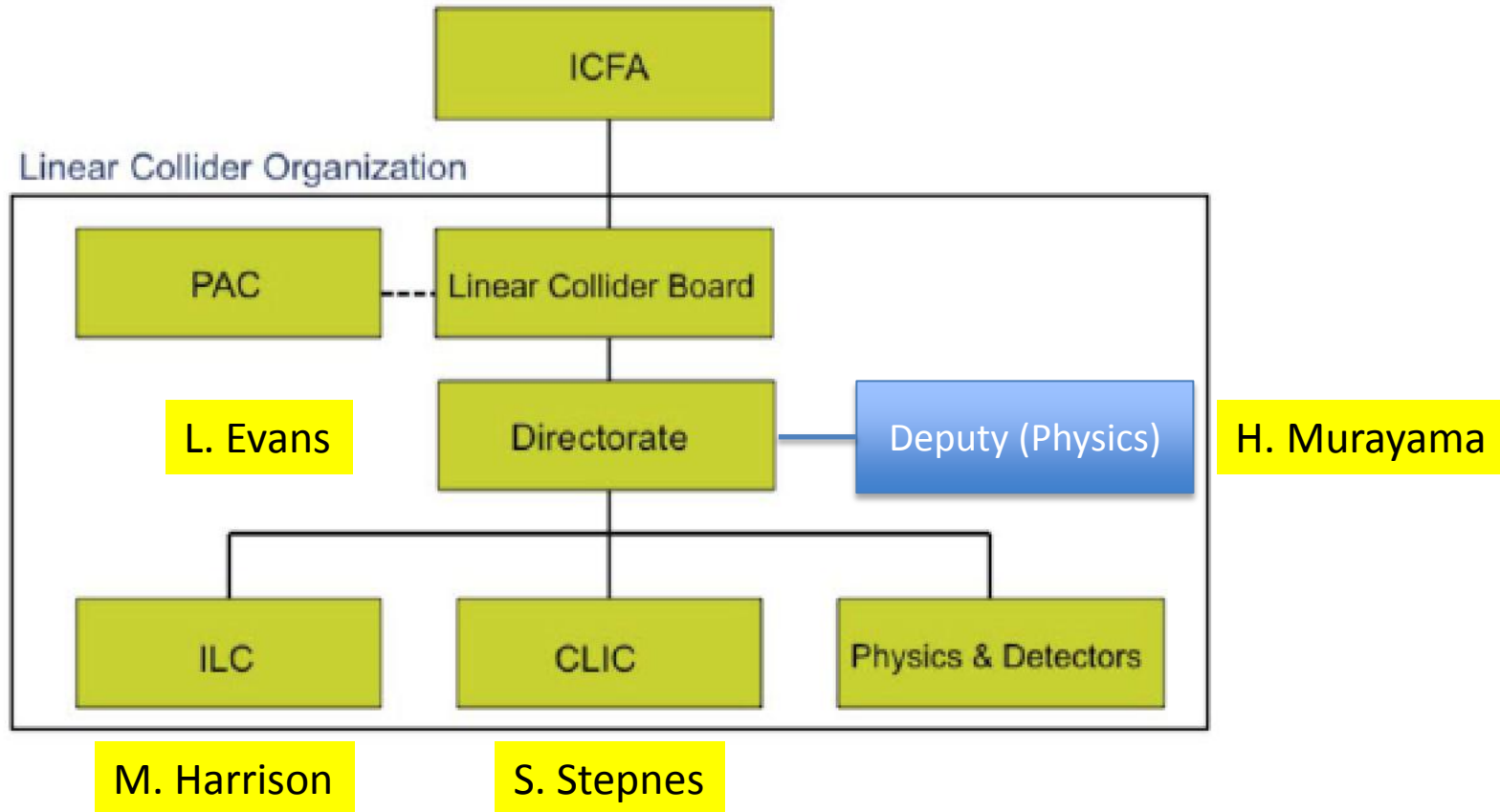
The workshop will be devoted to the study of the Physics case for a high energy linear electron-positron collider, taking into account the recent results from LHC, and to review the progress in the detector and accelerator designs for both ILC and

**We strongly encourage you to register and make travel arrangements as soon as possible! In particular, we recommend making the lodging reservation as soon as you can since we anticipate the hotel availabilities will be very limited close to the conference due to the possibility of Texas Rangers baseball team playing in the world series playoff games.**

We look forward to seeing you in Arlington, TX!

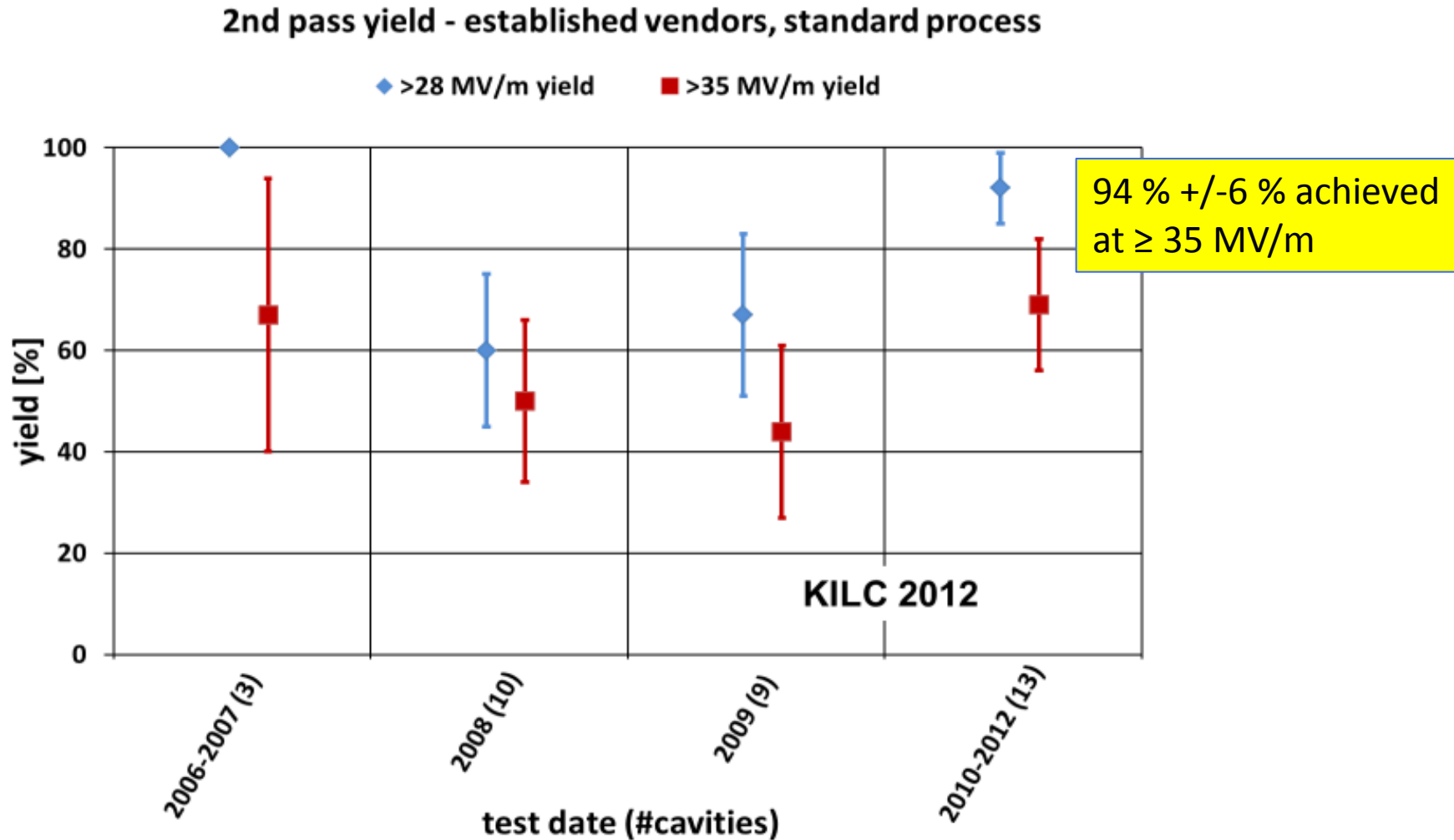
Andy White and Jae Yu  
Co-chairs of the Local Organizing Committee

# New LC Organization



- Recent discussions of the European Members of the LCB (5+5+5+1) and soon also advisory group – discussions lead by ECFA chair Manfred Krammer
- Lyn Evans appointed director for the LC efforts (starting in 2013) – ICFA announced in June

# Yearly Progress in Cavity Gradient Yield



# Future objectives

- Strongly support the Japanese initiative to construct **a linear collider** as **a staged project** in Japan.
- Prepare CLIC machine and detectors as an option for a **future** high-energy linear collider at CERN.
- Further **improve** collaboration between CLIC and ILC machine experts
- Move towards a “more normal” structure of collaboration in the detector community to prepare for the construction of **two** high-performance detectors.

# IEEE -NSS Symposium:

Institute of Electrical and Electronics Engineers  
**2012 IEEE NSS/MIC/RTSD Anaheim, California**  
27 October - 3 November 2012

Nuclear Science Symposium

## Conference Information

## Special Linear Collider Event 29-30 October 2012

### Introduction & Motivation

As part of the NSS Symposium, a special Linear Collider (LC) event is organized, which will include presentations on:

### Agenda for the "SPECIAL LINEAR COLLIDER EVENT"

**International Linear Collider (ILC) and the  
Compact Linear Collider (CLIC) accelerator**

### LC 6 Session:

*Accelerator Technologies for  
Industrial Applications  
(Invitation to Industrial  
Partners)*

**Detector concepts**

**Impact of LC technologies for industrial  
applications**

**Forum discussion about LC perspectives**

### Registration

*All participants are required to  
register over [IEEE NSS and MIC  
web site](#). Pre- registration is  
available online over IEEE  
registration*

James Brau, University of Oregon, USA  
Juan Fuster, IFIC Valencia, Spain  
Michael Harrison, BNL, USA  
Steinar Stapnes, CERN, Switzerland  
Hitoshi Yamamoto, Tohoku University, Japan  
Maxim Titov, IRFU/CEA Saclay, France (ex of  
Ingrid-Maria Gregor, DESY Hamburg, German

### Accommodation

*Hotel reservation information can  
be found under [IEEE NSS web](#)*

# LC Special Event: Agenda

- **Session 1: Introduction**
  - Welcome: R. Heier (CERN)
  - ILC: B. Barish (Caltech)
  - CLIC : S. Steinar (CERN)
  - Physic of LC: H. Murayama (IPMU-Tokyo, LBNL)
- **Session 2: ILC/CLIC accelerator and Detector Concept**
  - SCRF acceleration and ILC: N. Walker (DESY)
  - X-band, two-beam acceleration and CLIC D. Schulte (CERN)
  - Vertec Detector LC: M. Winter (IPHC, CNRS/IN2P3)
  - Silicon Tracking for LC T. Nelson (SLAC)
- **Session 3: ILC/CLIC Detector Concept and Summary of Detector Spin-offs**
  - Gaseous tracking for LC T. Matsuda
  - EM Calorimetry for LC J-C Brient (Ecole Polytechniques, CNRS/IN2P3)
  - Hadron Alorimetry for LC J. Repond (ANL)
  - Forward calorimetry and ... S. Kulis (AGH Univ. ST Cracow)
  - Spin-off Document “ILC Detector R&D” M. Demarteau (ANL)
- **Session 4: ILC/CLIC detector spin-off and ILC/CLIC Accelerator Instrumentation**
  - From ILC imaging calorimeter to a PET E. Grautti (U. Hamburg)
  - LC Spin-offs outside Medial Imaging C. de la Taille (IN2P3/CNRS)
  - LC instrumentation T. Lefevre (CERN)
  - Linear Collider module control and stabil. A Jeremie (LAPP, CNRS/IN2P3)
- **Session 5: ILC/CLIC Accelerator Technologiew for Industrial Applications I**
  - Opportunities for applications of LC technology M. Ross (SLAC)
  - Overview of industrial, medical, energy, and ... N. Holtkamp (SLAC)
  - Application of SCRF LC J. Rathke (AES)
  - Application of NCRF LC W. Wuensch (CERN)
  - Aplication of LC supporting RF Technology S. Lenci (Communications & Power Industries, LLC)
- **Session 6: ILC/CLIC Accelerator Technologies for Industrial Applications II**
  - Application of LC supporting instrumentation M. Ross (SLAC)
  - The Status of AAA M. Matsuoka (AAA, Japan)
- **Session 7: Forum Discussion about LC perspetives**



# Reports from TA Group Leaders

- Cavity Gradient R&D : R. Geng
- Cavity integration: H. Hanano
- Cryomodule: P. Pierini
- Cryogenics: T. Peterson
- HLRF S. Fukuda/C. Nantista
- ML Integration C. Adolphsen

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# TDR Technical Volumes

2007

2011

2013\*

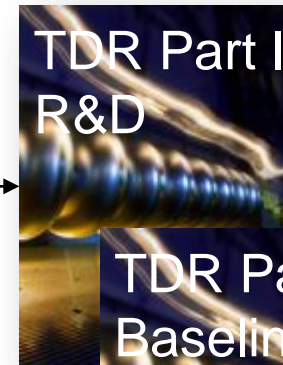


Reference Design Report



ILC Technical Progress Report (“interim report”)

AD&I



TDR Part I: R&D ~250 pages Deliverable 2



TDR Part II: Baseline Reference Report ~300 pages Deliverables 1,3 and 4

Technical Design Report

\* end of 2012 – formal publication early 2013

# GDE Internal Cost Review

Agenda: Nov. 13, am

	Print	PDF	Full screen	Detailed view	Filter
08:00	<b>Executive Session</b>				
	<i>One North WH1W, Fermilab</i>			08:00 - 08:30	
	<b>ILC design overview</b>			<i>WALKER, Nicholas</i>	
09:00	<i>One North WH - 1N, Fermilab</i> 08:30 - 09:15				
	<b>Cost Scope, Methodolgy and Guidelines: TDR Cost estimate/Schedule sections 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.9.1</b>				<i>DUGAN, Gerald</i>
10:00	<i>One North, WH1N, Fermilab</i> 09:15 - 10:05				
	<b>Break</b>				
	<i>One North, WH1N, Fermilab</i>			10:05 - 10:20	
	<b>Superconducting RF systems: Production and Production Infrastructure: Part of TDR Cost estimate/Schedule section 1.7.1 + 1.8.2, 1.8.3 (totals) + 1.9.2 (uncertainties)</b>		<i>YAMAMOTO, Akira</i>	<b>L-band High Level RF: TDR Cost estimate/Schedule section 1.7.2 + 1.8.2, 1.8.3 (totals) + 1.9.3 (uncertainties)</b>	
11:00	<i>One North, WH1N, Fermilab</i> 10:20 - 11:30				
	<b>Superconducting RF systems - cryomodule assembly: Part of TDR Cost estimate/Schedule section 1.7.1 + 1.8.2, 1.8.3 (totals) ...</b>		<i>PARMA, Vittorio</i>	<i>Fish Tank Wh13X, Fermilab</i> 10:20 - 11:50	
12:00	<b>Superconducting RF systems: Qualification and qualification infrastructure: Part of TDR Cost estimate/Schedule section 1.7.1 + 1.8.2, 1.8.3 (totals) + 1.9.2 (uncertainties)</b>				<i>ROSS, Marc</i>
	<i>One North, WH1N, Fermilab</i>			11:55 - 12:15	
	<b>Working Lunch</b>				

# Agenda: Nov. 13 pm

13:00	One North, WH1N, Fermilab		12:15 - 13:10	
	<b>Cryogenics: TDR Cost estimate/Schedule section 1.7.5 + 1.8.2, 1.8.3 (totals) + 1.9.5 (uncertainties)</b>	<i>PETERSON, Tom</i>	<b>CFS: TDR Cost estimate/Schedule section 1.7.3 + 1.8.2, 1.8.3 (totals) + 1.9.4 (uncertainties)</b>	<i>KUCHLER, Victor et al.</i>
14:00	<b>Conventional Accelerator Systems: TDR Cost estimate/Schedule section 1.7.4 + 1.7.6-1.7.13 + 1.8.2, 1.8.3 (totals) + 1.9.5 (uncertainties)</b>	<i>LIST, Benno</i>		
15:00	Fish Tank WH 13X, Fermilab	13:40 - 15:10	One North, WH1N, Fermilab	13:10 - 15:10
	<b>Break</b>			
	One North, WH1N, Fermilab			15:10 - 15:30
	<b>Cost summary/roll-up: TDR Cost estimate/Schedule section 1.8, 1.9</b>			<i>DUGAN, Gerald</i>

# GDE-PAC

held at KEK, Dec., 13-14, 2012

- Last PAC during TD Phase
- TD Report (Part II) submitted to the PAC
- Reviewers
  - Jonathan Bagger
  - Jia-er Chen
  - Stefan Choroba
  - Michel Davier
  - Lyn Evans (Chair)
  - Enrique Fernandez
  - Paul Grannis
  - Stuart Henderson
  - Masao Kuriki
  - Tomio Kobayashi
  - Lutz Lilje
  - John Mammosser
  - Wolf-Dietrich Moeller
  - Katsunobu Oide
  - Robert Orr
  - Ray Pillay
  - John Seeman
  - Hans Weise

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09:00 – 09:45 Executive Session

09:45 – 10:30 Accelerator Overview B. Barish

10:30 – 10:45 Break

10:45 – 11:45 Machine Design N. Walker

11:45 – 12:30 ML Layout & HLRF S. Fukuda, M. Ross

12:30 – 13:00 Executive Session

13:00 – 14:15 Lunch

14:15 – 15:45 SCRF A. Yamamoto

15:45 – 16:00 Break

16:00 – 16:30 Positron Source W. Gai

16:30 -- 17:00 Damping Rings G. Dugan

17:00 – 18:00 Conventional Facilities Kuchler/Enomoto

18:00 – 19:00 Executive Session

# GDE-PAC

held at KEK, Dec., 13-14, 2012

**3 Main Linac and SCRF Technology**

- 3.1 Overview of the ILC Main Linacs
  - 3.1.1 Introduction
  - 3.1.2 Linac layout
  - 3.1.3 Accelerator Physics
  - 3.1.4 Operation
  - 3.1.5 Linac Systems
- 3.2 Cavity production specifications
  - 3.2.1 Cavity Design
  - 3.2.2 Cavity fabrication and surface processing
- 3.3 Cavity integration
  - 3.3.1 Fundamental-mode power coupler
  - 3.3.2 Frequency tuner
  - 3.3.3 HOM couplers
  - 3.3.4 Helium tank and its interface
  - 3.3.5 Plug-compatible design
- 3.4 Cryomodule design including quadrupoles
  - 3.4.1 Overview
  - 3.4.2 Cryomodule technical description
  - 3.4.3 Cryomodule testing
  - 3.4.4 Shipping of cryomodules between regions
- 3.5 Cryogenic cooling scheme
  - 3.5.1 Cryogenic cooling scheme for the main linacs
  - 3.5.2 Heat loads and cryogenic-plant power
  - 3.5.3 Helium inventory
  - 3.5.4 Pressure code compliance
- 3.6 RF power source
  - 3.6.1 Overview
  - 3.6.2 Modulator
  - 3.6.3 10MW Multi-Beam Klystron (MBK)
  - 3.6.4 Local power-distribution system
  - 3.6.5 RF power requirements
- 3.7 Low-level RF (LLRF) control concept
  - 3.7.1 Overview of Low-level RF control requirements
  - 3.7.2 Vector-sum control of cavity fields
  - 3.7.3 Operation at the limits
  - 3.7.4 Individual cavity control
  - 3.7.5 LLRF operations
  - 3.7.6 LLRF system implementation
- 3.8 Main-linac layout for a mountainous topography
  - 3.8.1 Introduction
  - 3.8.2 Linac layout and cryogenic segmentation
  - 3.8.3 The DKS high-power distribution System
  - 3.8.4 LLRF control for DKS
- 3.9 Main-linac layout for a flat topography
  - 3.9.1 Introduction
  - 3.9.2 Linac layout and cryogenic segmentation
  - 3.9.3 The KCS high-power distribution system
  - 3.9.4 LLRF control for KCS

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Akira  
Marc  
Shigeaki

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18:00 – 19:00 **Executive Session**

# Preparation

- Presentation Draft due: November 30,
- Review the preparation files, through webex
  - Main Linac Layout and HLRF, and SCRF: Dec. 3, Mon
  - CFS: Dec., 4,
  - Others: Dec., 5
- PAC: Dec. 13, 14