



# **SCRF Monthly WebEx Meeting**

## **April, 13, 2009**

### **Agenda**

- 1) Report from Project Managers**
- 2) Report from Group Leaders**
- 3) TILC09-AAP Review: SCRF**
- 4) Parallel Sessions**
- 5) Further Plan**



# Report from Project Managers

- **Contribution to VECC-KEK Joint School on SC Technology**

- Fundamental of superconducting cavities by S. Noguchi,
- Low beta superconducting cavity by P.N. Parkash,
- High current SC cavity by K. Hosoyama,
- Cryogenics by T.S. Datta, and G. Pal,
- ILC SCRF R&D served by A. Yamamoto,
- etc.



# Report from Project Managers, 2

- **Visit to J-Lab**

- Project managers (M.R., A.Y.) visited J-lab

- **New Cavity Group Organization**

- Lutz has difficulty to continue the ILC-TDP SCRF Cavity group leader because of laboratory's priority at DESY,
- Fermilab has similar situation, and KEK already taking the role of Cavity Integration,
- We discussed with JLab management, and agreed to to nominate Rongli (Geng) to be the next SCRF cavity group leader, and
- Roles are:
  - The field gradient R&D is best research oriented work and the group leader can stay at research activities with minimum management work,
  - The SCRF PM may be primarily responsible to the management part, such as re-baseline of the field gradient and the decision process,



# **AAP Review – SCRF**

## **Introduction**

**Akira Yamamoto**  
**Project Manager, SCRF**

**To be presented, April 19, 2009**



# Context Give by AAP

- **SCRF**

- ***What is the path to finalizing the gradient choice?***

**Context**

- Current experimental status
      - Established standards
    - Extrapolation of results

- Time limitations
  - Decision process
  - Role of plug compatibility in this process

- ***What is the path towards industrialization?***

**Context**

- Current experimental status
      - Established standards
      - Extrapolation of results
      - Internationalization of efforts

- Outline tendering process
    - Role of Plug compatibility

- ***Lessons expected from systems tests***

**Context**

- FLASH

- Operational limitations of ILC cavities
        - ILC like mode
          - Long bunch
          - High charge
          - High gradient
        - Experience and characterization of implications for ILC

- Other facilities foreseen

- Timelines
      - Benefits



# AAP Review Context for SCRF

| Context   | Charge   | Note      |
|---|--|-----------|
| <p><b><u>What is the path to finalizing the gradient choice?</u></b></p> <ul style="list-style-type: none"><li>- Current Experimental status</li><li>- Established standards, and Extrapolation of results</li><li>- Role of “plug-compatibility”, in R&amp;D stage</li><li>- Time (limitation) and Decision Process</li></ul>                              | <p><u>L. Lilje</u><br/>M. Champion<br/>H. Hayano<br/>R. Geng<br/><u>A. Yamamoto</u></p>                                      | S0        |
| <p><b><u>What is the path toward industrialization?</u></b></p> <ul style="list-style-type: none"><li>- Current experimental status</li><li>- Established standards, and extrapolation of results</li><li>- Internationalization of efforts,</li><li>- <b>Outline tendering process</b></li><li>- Role of Plug-compatibility, in Production Stage</li></ul> | <p><u>N. Ohuchi</u><br/>P. Perini<br/>D. Mitchell<br/><u>H. Hayano</u><br/>C. Pagani<br/>J. Kerby<br/><u>A. Yamamoto</u></p> | S1/S<br>2 |
| <p><b><u>Lesson expected from system test</u></b></p> <ul style="list-style-type: none"><li>- FLASH at DESY (operational limitation of ILC cavities)</li><li>- STF at KEK, time-line and benefit</li><li>- NMF at FNAL: time-line and benefit</li></ul>   | <p>(J. Cawardine)<br/><u>H. Hayano</u><br/><u>M. Champion</u></p>  | S2        |



# SCRF Session Agenda, April 19

| Time  | Report   | Charged by              | Note  |
|-------|--|-------------------------|-------|
| 09:30 | Introduction   | A. Yamamoto             |       |
| 09:40 | Path to finalizing cavity field gradient             |                         | S0    |
| 10:15 | - R&Ds to improve the gradient<br>- Decision process | L. Lilje<br>A. Yamamoto |       |
| 10:30 | -- Coffee Break --                                   |                         | S1/S2 |
| 11:00 | Path towards industrialization                       |                         |       |
| 11:00 | - Cavity Integration                                 | H. Hayano               |       |
| 11:30 | - Cryomodule   | N. Ohuchi               |       |
| 12:00 | - Role of plugcompatibility (cavity/cryo)            | A. Yamamoto             |       |
| 12:15 | - Cryogenics   | T. Peterson             |       |
| 12:30 | -- lunch break --                                    |                         |       |
| 14:00 | - HLRF   | S. Fukuda               |       |
| 14:20 | - MLI: beam dynamics and quadrupoles                 | C. Adolphsen            |       |
| 14:40 | Lesson expected from system tests                    |                         | S2    |
| 14:40 | - STF at KEK   | H. Hayano               |       |
| 15:00 | - NMF at FNAL  | M. Champion             |       |
| 15:20 | Summary / Discussions                                | A. Yamamoto             |       |
| 15:30 | Adjon  |                         |       |



# Response from AAP for SCRF

The SRF R&D started with a well-laid out international R&D plan, which required the intricate interaction of the participating laboratories already in the phase of the Reference Design Report. Goals defined during that phase have been elaborated in an often demanding decision process. Naturally, as time went on priorities shifted and so did the R&D activities. **How** did and does the process affect the readiness for the decision process of the gradient? **What level** of confidence can be reached in the various technical areas?

It would be beneficial for the committee to have a short **introductory review** of the critical R&D gradient goals for TDP 1 and 2 and their timelines, with mention of **targets for number of cycles/number of cavities, and number of cryomodules**, as laid out in the TDP document. The status report should cover **activities** in both **cavity and cryomodule gradients**. On the continuing R&D Plan, there is a need to discuss fully how **the gaps between the current status for cavity gradients and the goals** for TDP phases 1 and 2 will be addressed. For example:



## Continued and extended to Cryomodules

- What are the **sources** of present **limitations** in gradient yields due to preparation processes?
- What **approaches** are underway to increase the process yield?
- How will **sufficient number of cycles** be made available?
- What are the sources of present **limitations in gradient yields** from cavity to cavity?
- What approaches will be pursued to increase the **cavity yield/vendor yield**?
- How will **sufficient number cavities/cycles** be made available to **2012**?



## Continued; Plug-Compatibility

- While the topic of **“Plug compatibility”** relates both to R&D and industrialization phases, it would be more suitable for the review goals to focus on the role for the R&D phase. Some of the related issues that would be helpful to address are:
- What are the **expected cost/performance advantages** of each of the options being considered (for cavities, couplers, tuners), **especially relative to the XFEL choices?**
- While the material on the web presentations on Main Linac Integration and Cryogenics shows important progress, it will need to be shortened considerably to make time for the more urgent topics above related to **the critical R&D, gradient goals**. This material fits the TILC talks very well.



# backup



# AAP Review General Agenda

|    | 17(Fri)            | 18(Sat) | 19(Sun) | 20(mon) | 21(Yue)          |
|----|--------------------|---------|---------|---------|------------------|
| 9  |                    |         | ATF     | AS      | Joint<br>Summary |
| 10 | ACFA-GDE<br>Joint  | CFS     | SRF     |         |                  |
| 11 |                    |         |         |         |                  |
| 12 |                    |         |         |         |                  |
| 13 |                    |         |         |         |                  |
| 14 |                    | GESRTA  | SRF     | MM      |                  |
| 15 | AAP<br>Guidance    |         |         | FLASH   | PM<br>summary    |
| 16 |                    |         |         |         |                  |
| 17 | AAP Closed Session |         |         |         |                  |