Introduction to Working Group 1

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Outline

- Assessment of current status
  - Several projects like LEP, CEBAF, SNS, and TTF have accumulated experience in the fabrication and preparation of multi-cell cavities.
- Outlook
  - As there are new projects on the horizon (e.g. XFEL, ILC) we believe it is worthwhile to discuss what are the lessons learned from the existing projects. Following an assessment of the existing experience, the question to be asked could be:
- Question:
- 'What are the requirements for a next generation large-scale cavity preparation infrastructure?'
  - This question will be difficult to answer in this one meeting, but we believe that the TESLA collaboration with its new mission should be the focal point for a series of discussions.
  - This process should start now and should be followed-up in the next TESLA/SRF meetings.

Where could this discussion be followed up?

- This is for information at this point in time, might need discussion
- Potential meetings
  - SRF 2005 Workshop in Cornell
  - Snowmass
  - Next TESLA Technology Collaboration Meetings
  - ILC-BDIR WG4 Interim Workshop
    - http://www.pp.rhul.ac.uk/workshop/
    - Has a SRF technology part, focus on ILC

Outline (ctd.)

- Goals
  - In this first iteration information and ideas should be collected.
  - A list of potential treatment should be developed.
  - The interests and contributions of the different labs should be listed.
- Method
  - Leave enough room for discussion
  - WG 1: R&D for high-quality large-scale cavity production
    - focus on processes
    - Define needed R&D for large-scale application
  - WG2: Next generation cavity infrastructure (see D. Reschke – next talk)
    - E.g. Review existing implementations of these processes

WG1: R&D for High-Quality Large-Scale Cavity Production

- 1. Review of production (incl. preparation) experience
  - This part of the meeting should asked the question which are the techniques that have been used.
    - What were the results on the cavities?
    - Which are the positive experiences?
    - What should not be considered for the future?
  - Candidate talks for this part of the discussion are and potential subtopics:
    - SNS cavity production:
      - experience with scanned niobium material, no Ti treatment, etching, HPR
    - TTF cavity production (L. Lilje):
      - scanned niobium material, Ti treatment, etching, electropolishing, HPR
    - LEP cavity production (Dieter Bloess):
      - large-scale industrial production, industrialisation of processes
    - CEBAF:
      - etching

- 2. Which of the processes is promising for future application and what R&D is still needed?
  - Example: What is needed to make the EP results more reproducible?
    - Status of research on EP parameters at Saclay (Fabien Eozenou, CEA)
    - What needs to be done to understand 'in-situ' baking? (JLab Experience – P. Kneisel)
    - FE measurements at Wuppertal (Arti Dangwal)
    - Is scanning of formed sheets or dumb-bells possible/ worthwhile?

- 3. Are there cavity design changes needed for a new large-scale production?
  - What are the changes from the TTF design towards the XFEL? (W.Singer ~15 min)
    - More detalied specification
    - 3D-Measurement of deep-drawn units
    - ZANON production
    - single-cell program
  - Is large-grain material a candidate for a large-scale production? (P. Kneisel, JLab)
  - Roughness measurements at Wuppertal (G. Mueller)