



Linac WG report

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Agenda

Overall Linac Design, 1.3 GHz Cavities - N. Solyak
Front End (Ion Source, RFQ) -- D. Li
Linac RF systems -- R. Pasquinelli
CW Operation of SRF Cavities -- C. Rode

SSR section -- S. Yakovlev
TSR Section -- P. Ostroumov
Chopper Ideas - R. Webber
1.3 GHz Couplers - C. Adolphsen
325 MHz Couplers -- T. Khabiboulline

RFQ Studies -- J. Staples



Charge

- Charge to the working groups:
 - Discussion/potential modifications to ICD-1 and ICD-2;
 - Discuss potential modifications to the existing RD&D plan for ICD-2;
 - Establish goals and work plan for FY2010 (elements and sequencing);
 - Includes foreseen MOUs
 - Provisional distribution of responsibility and funding
 - Identify any issues related to the above that need resolution



ICD1

- No changes to ICD-1 were proposed



ICD2

- Received a lot of good advice
- Summarized by Claus Rode:
 - CW operation requires integrated design effort
 - Just scaling pulsed design will get you into trouble



Ion source, LEBT

- Ion source (10 mA cw) technology exists. Good proposal from LBNL.
- Need to investigate two ion sources to ease the chopper design.



- Good proposal from LBNL
- Optimize the choice of frequency and energy gain
 - possibly start conceptual engineering studies
- In FY10 will start beam dynamics simulations from ion source to SSR
 - Goal: minimize losses, emittance. Make chopper easier.



Chopper

- No proposal yet.
- Design of an acceptable chopping system with requirements as currently understood is extremely challenging, pushing the limits of current technologies
- Will investigate an alternative approach of two ion sources and RFQs
- Chopper system investigations must be high priority R&D
- All ideas from collaborators are welcomed



SSR

- Optimize cavity to maximize the energy gain per actual “real estate” length, not just per cavity gap.
- LE cryomodules require conceptual engineering and eventual prototyping.
- Beam dynamics simulation: investigate solenoidal vs. quad focusing
- Investigate cryo segmentation, and 2K vs 4.5K



- Good proposal from ANL
- Investigate couplers, and 2K vs. 4.5K



SILC and ILC

- Choice of G and Q_0 may not be optimal.
- Keep 9-cell Tesla cavity technology but optimize the beta. More than two types may be OK.
- ILC cryomodule: determine if CW is OK
 - coupler, cavity cooling, HOMs



- This is not a plan but ideas
- In collaboration with Cornell, MSU, LBNL, SLAC, JLab, ANL, INFN (Milan)
 - Beam dynamics thru linac
 - Chopper and RFQ concept
 - Couplers (test high average power)
 - SSR and TSR cryomodule: conceptual engineering
 - Linac parameter optimization
 - RF cost minimization