

AGENDA

TJNL/FNAL Joint Meeting – Thursday, March 25, 2010

1. INTRODUCTION/OVERVIEW

Brief PowerPoint presentation outlining FNAL proposed Project X Linac configuration and cavity parameters.

FNAL's IMMEDIATE GOAL: Develop mechanical design, fabricate and test several $\beta=0.6$ and $\beta=0.9$ single-cell 650 MHz cavities. Based on the results of these tests, modify the design if necessary.

FNAL's LONG TERM GOALS: Develop mechanical design, fabricate and test $\beta=0.6$ and $\beta=0.9$ five-cell 650 MHz cavities. Design helium jackets and cavity-to-helium jacket interface.

2. TJNL's EXPERIENCE DESIGNING AND FABRICATING SNS CAVITIES

Choice of material thickness (4 mm cell walls, 3 mm wall beam tubes)

Half-cell forming – determination of required niobium blank size

Half-cell profile tangent slope

EB weld preparations – step vs butt joints

Weld fixturing/EB welding (orientation of dumbbells and e-beam for equator welds -- direction of rotation of dumbbells during equator welding)

Stiffening ring welding issues (deformation, etc.)

F-part welds – puddle vs perimeter of posts

Pull-outs for main coupler tubes, HOM housings, etc.

Flanges – choice of seals (aluminum hex seals?)

3. TJNL's EXPERIENCE DESIGNING AND FABRICATING HELIUM VESSELS

Choice of material – Pros and Cons – titanium vs stainless steel

Helium jacket interface

Special assembly or pre-tuning procedures