HOT Topic - Material Qualification for Large Scale Projects

Monday September 23rd 18:00
Ground rules:

• Make your point quickly and from a technical basis
  —Back it up with examples
• Let others respond to your point
• Do not argue
  —Instead say I disagree, and then make your point
Question 1

• Is material scanning necessary, cost effective?
  • High gradients $> 20\text{MV/m}$?
  • Low gradients $< 20\text{MV/m}$?
Experience with semi-finished material purchased for JLAB upgrade cavities

- Material (RRR250) purchased according to JLAB specification
- About 1300 sheets, 3.2 mm x 240 mm x 240 mm required for 86 pieces 1.5 GHz 7 cell cavities
- Material ordered at Tokio Denkai
- No eddy current scanning performed on cell sheets
- Tubes manufactured from sheets, 4 mm thick, EB welded and turned
- One sheet showed lamination after deep drawing
- No cavity limited by material defect to our knowledge
- If material is ordered by industry, overhead cost do apply. Decision who purchases the material (industry or institute) involves risk evaluation.
Defects detected in Nb-sheets of different suppliers. For details see MOP047, MOP031

2.5% of defects means that each 40th Nb-sheet has a defect and in worst case the performance of each second cavity will be affected.
Question 2

• Should the vendors provide the material and material QA or the laboratories?
AES - Cavity Material Purchase

- **Cost** ➔ Reduced if Labs Purchase Material
  - If the Labs purchase the material they avoid the procurement burdens that companies must apply to the purchase price

- **Schedule** ➔ Improved if Labs Purchase Material
  - With the long lead time associated with RRR Nb the Lab can purchase some or all material in advance of awarding the cavity manufacturing contract

- **QA** ➔ Slight Premium if Labs Purchase Material
  - If Labs purchase material there will be QA at the Lab and receiving QA at the cavity manufacturer though the company QA can be at a reduced level
  - Can be offset if Lab QA is performed at the cavity manufacturers facility
Question 3

• Are the current material specifications adequate, same lab to lab? or are we over paying?