## Virtual International Workshop on Nb3Sn SRF Science, Technology, and Applications (Nb3SnSRF'20)



Contribution ID: 18

Type: Oral presentation

## Nb3Sn growth in vapor diffusion: process design for large surface area coatings

Wednesday, 11 November 2020 10:05 (20 minutes)

Following the recent progress made in the Nb<sub>3</sub>Sn coatings on single-cell SRF cavities, development is ongoing to reproduce single-cell cavity results on practical SRF structures. Those structures may include multi-cell and single-cell cavities having a larger surface area than regularly coated ~1.5 GHz single-cell cavities. Early CEBAF five-cell cavities coated with a typical coating procedure resulted in high low-field quality factors, but strong low-field Q-slopes and early quenches typically limited the cavities. Followed by a material analysis of witness samples positioned in strategic locations during cavity coating, several changes from the original process design for single-cell cavity coating were introduced to improve the quality of Nb<sub>3</sub>Sn films for large surface area coatings. The best Nb3Sn-coated CEBAF 5-cell cavities have reached accelerating gradients useful for cryomodules. We will discuss process designs used to coat CEBAF five-cell cavities and a 952 MHz single-cell cavity at JLab.

**Primary authors:** PUDASAINI, Uttar (Jefferson Lab); Dr EREMEEV, Grigory (FNAL); REECE, Charles; KEL-LEY, Michael (Jefferson Lab); CIOVATI, Gigi (Jefferson Lab)

Presenter: PUDASAINI, Uttar (Jefferson Lab)

Session Classification: Growth Studies

Track Classification: Growth studies