Contribution ID: **48** Type: **not specified**

Tuning Niobium Oxides for Sn Nucleation

With a critical temperature twice that of niobium, Nb_3Sn is the most promising alternative material for the future of Superconducting Radio-Frequency (SRF) technology, steadily advancing towards practical applications. In this collaborative study, we developed a framework to synthesize, characterize and compare substrate preparations based on oxide composition and surface roughness, aiming to understand tin nucleation mechanisms and design optimal substrate surfaces for high quality Nb_3Sn films. Our results show that anodized Nb substrates provide more nucleation sites and offer insight into the chemical composition of the oxide layer before and after heating to nucleation temperatures.

Additional Authors

Primary authors: BROWN, Jasper; SHPANI, Liana; DO, Van

Co-authors: Prof. LIEPE, Matthias; SIBENER, Steven

Presenters: BROWN, Jasper; SHPANI, Liana; DO, Van