

Advances in development of Nb coating technology

Over the years, Nb/Cu technology has positioned itself as an alternative route for the future of superconducting structures used in accelerators. Significant progress has been made recently in the development of energetic vacuum deposition techniques, supporting the promise of high-performing SRF thin films. Deposition techniques such as Electron Cyclotron Resonance (ECR) and High Power Impulse Magnetron Sputtering (HiPIMS) are exploited in various institutions for the development of the next generation SRF surfaces. RF measurements are being correlated with surface and material properties. In the framework of these projects, it has been shown that Nb films with very high material quality (comparable to bulk Nb), and tuneable RRR values can be produced by optimizing the deposition energy. The RF response of these new films is under evaluation. This presentation will give a summary of the results obtained thus far and the ongoing research program in different research institutions.