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### **Nb<sub>3</sub>Sn SRF Cavities for Nuclear Physics Applications<sup>1</sup>**

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Nuclear physics experiments rely increasingly on accelerators, which employ superconducting RF (SRF) technology. CEBAF, SNS, FRIB, ESS, among others exploit the low surface resistance of SRF cavities to efficiently accelerate particle beams towards experimental targets. Niobium is the cavity material of choice for all current or planned SRF accelerators, but it has been long recognized that other superconductors with high superconducting transition temperatures have the potential to surpass niobium for SRF applications. Among the alternatives, Nb<sub>3</sub>Sn coated cavities are the most advanced on the path to practical applications: Nb<sub>3</sub>Sn coatings on R&D cavities have T<sub>c</sub> consistently close the optimal 18 K, very low RF surface resistances, and very recently were shown to reach above H<sub>c1</sub> without anomalous RF surface resistance increase. In my talk I will discuss the prospects of Nb<sub>3</sub>Sn SRF cavities, the research efforts to realize Nb<sub>3</sub>Sn coatings on practical multi-cell accelerating structures, and the path toward possible inclusion in CEBAF.

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