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Initial results for CVD based growth of Nb_3Sn

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Niobium-3 tin (Nb_3Sn) is a promising material for next-generation superconducting RF cavities due to its high critical temperature and high theoretical field limit. There is currently significant worldwide effort aiming to improve Nb_3Sn growth to push this material to its ultimate performance limits. In this paper, we present the first results of deposition of Sn on different Nb samples in different orientations in our Chemical Vapor Deposition (CVD) system. We discuss imaging results and the stoichiometry achieved for Nb_3Sn coupons. We compare the films' deposition uniformity with expected results from flow simulations. We describe the parameters used in the coating and future steps towards coating a 2.6 GHz cavity in our CVD system. We also discuss current technical limitations in the CVD process and potential alternative tin precursors to improve coating uniformity and stoichiometry.

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Yes

Footnotes

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