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Recent progress in the coating and application of Nb₃Sn thin film SRF cavity at IMP

Wednesday 4 June 2025 16:00 (2 hours)

Systematic research work including coating process optimization of Nb₃Sn thin film on single cell cavity, quality control before and after coating Nb₃Sn thin film on multi-cell cavity, and the construction and operation of LHe-free Nb₃Sn SRF demo electron accelerator was carried out at IMP. The evolution of Nb₃Sn thin films in the whole growth cycle was tracked by experiments, and the mechanism of the oxide layer on the uniform growth of Nb₃Sn thin films was clarified by theoretical calculation. Field flatness of the Multi-cell cavity during different post-treatments involving long-distance transport, handling and lifting, light BCP polishing, disassembly, reassembly and coating has been verified. The one-year operation experience of LHe-free Nb₃Sn SRF demo electron accelerator will be shared. In addition, the experiment of degradation of wastewater by electron beam irradiation was carried out based on the Nb₃Sn SRF electron accelerator.

Footnotes

Paper preparation format

Word

Region represented

Asia

Funding Agency

Author: YANG, Ziqin (Institute of Modern Physics, Chinese Academy of Sciences)

Presenter: YANG, Ziqin (Institute of Modern Physics, Chinese Academy of Sciences)

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