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M3Or1C-02 [Invited]: Nitrogen doping, nitrogen infusion, and niobium-3 tin: recent challenges and advances in fundamental SRF accelerator physics

Wednesday, July 24, 2019 10:00 AM (30 minutes)

Nitrogen-doped niobium is one of the recent keystone advances in the field of SRF accelerator physics: N-doped cavities reach unprecedentedly high efficiency at usable accelerating gradients, and the more recently developed “nitrogen infusion” reaches similar efficiency with even higher accelerating field. On the horizon is niobium-3 tin (Nb₃Sn), a superconducting compound that exceeds the efficiency of niobium by a factor of 20 at 4.2 K. Here we present recent challenges and advances from the Cornell SRF group on these exciting new materials, with an eye towards near-future applications.

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