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## Critical Fields of Nb<sub>3</sub>Sn

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The field of first vortex penetration was measured on Nb<sub>3</sub>Sn samples under DC and RF fields using the muon spin rotation technique and a quadrupole resonator. Those methods also enabled direct and indirect measurements of the London penetration depth from which the lower critical field and the superheating field are derived. The combined results confirm that Nb<sub>3</sub>Sn cavities are indeed operated in a metastable state above the lower critical field but currently limited to a critical field well below the superheating field. This possibly non-fundamental limitation is also visible in the temperature dependence of the RF critical field deviating from the expected quadratic behavior.

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