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Technical superconductors (LTS)

Thursday 23 November 2023 08:30 (1 hour)

The lecture starts by introducing the basic requirements on superconducting wires and tapes for applications. The difference between the technical critical current and the original definition of the critical current in terms of the critical state is discussed. The concept of stabilized multifilamentary wires is introduced. Details and particular properties of three superconducting materials (NbTi, MgB2, Nb3Sn) used for LTS wires are given. Possibilities of optimizing flux pinning or enhancing the upper critical field are outlined. Production techniques for Nb3Sn wires with their advantages and disadvantages are presented. The influence of stress and strain on the wire performance is discussed with a particular focus on Nb3Sn.

Presenter: EISTERER, Michael