



Contribution ID: 611

Type: Poster

Sat-Mo-Po.08-05: Comparison of Nb₃Sn Insulation Systems with as received and de-sized glass

Saturday 5 July 2025 09:30 (1h 45m)

Epoxy cracking has been the main suspected contributor to training in Nb₃Sn magnets for some time, as it leads to energy release and magnet quenching. Cracking in a superconducting composite can occur from several modes, and the likelihood of these modes is not well understood. Failure has been observed between insulation systems and the superconducting cable itself rather than within the cable or insulation. Previous work has suggested that the sizing present on glass fibers may affect performance of the composites. To target the behavior at the interface, samples have been fabricated with standard S2 glass as well as the same which has been de-sized using heat cleaning. These samples tested for mode I fracture toughness in an adapted version of ASTM D5528, as well as short beam strength using ASTM D2344. This work seeks to better characterize the behavior of the conductor-insulation interface to better understand how to model and design insulation systems.

Authors: KRAVE, Steve; ENGLISH, Chris

Presenter: KRAVE, Steve

Session Classification: Sat-Mo-Po.08 - Structural and Insulation Materials