FCC Week 2019



Contribution ID: 503

Type: Presentation

Development of Nb3Sn for FCC at BRUKER

Thursday 27 June 2019 13:45 (15 minutes)

CERN and BRUKER have been longstanding, historic partners in the development, manufacture and support of today's materials for accelerator magnets. With the Future Circular Collider on the horizon, both companies decided to build on their partnership and extend their collaboration in order to ready today's state of the art A-15 Materials for the requirements of future accelerator magnets. As of 2018, CERN and BRUKER are collaborating on three major topics:

First –The development, reproducible characterization and evaluation of the effect of internal oxidation and other APC approaches on several variations of BRUKER's PIT and RRP® designs.

Second –The refinement of manufacturing strategies and heat treatments to maintain a high Jc and RRR at very small filament diameters.

Third –The development of a more resource-efficient, cost-saving and less energy-intensive manufacturing route for the large scale fabrication of high-Jc Nb3Sn conductors.

In this talk, BRUKER presents the extent of their joint project and discusses first results, methods, challenges and perspectives of the internal oxidation in PIT conductors with the goal to establish a common base for the characterization of such wires and to understand the working principles of this promising technique.

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Session Classification: Magnets

Track Classification: Superconducting magnets & associated technologies