



Contribution ID: 466

Type: **Invited Oral Presentation**

[Invited] Development of Bi-2212 round wire for high field magnet applications

Wednesday 12 July 2017 16:45 (30 minutes)

Due to steady progress in both performance and application engineering, Bi-2212 round wires are increasingly attractive materials for ultra-high field (>25 T) magnets. In recent work to further improve the critical current density and repeatability of long length performance, we have worked closely with several US powder suppliers and national laboratories on Bi-2212 powder development. These efforts include optimizing powder stoichiometry and phase composition, and focusing the creation of economical and reproducible processes. Through our broad collaborations, we have also made efforts to make it easier to use Bi-2212 wires in high stress coils. We have looked at both reinforcing the wire by adding strong materials, and reinforcing coils by co-winding with strong materials. To meet practical application requirements, the wire piece length has been significantly increased by improving our processing conditions and enlarging our production billet size. A 0.8mm wire of piece-length over 2400m has been achieved and today wire lengths of 1 km are routine. We have also improved insert coil performance by optimizing the wire size and filament configurations and using densification techniques. The latest results of Bi-2212 wire development and properties will be presented in detail.

Authors: Dr MIAO, Hanping (Bruker-OST); Dr HUANG, Yibing (Bruker-OST); Dr PARRELL, Jeff (Bruker-OST)

Presenter: Dr MIAO, Hanping (Bruker-OST)

Session Classification: M3OrH - BSCCO Wires and Tapes II: Processing & Properties