



Contribution ID: 534

Type: **Invited Oral Presentation**

[Invited] Recent advances in iron-based superconducting wires and tapes

Monday, 29 June 2015 17:30 (30 minutes)

122 type pnictide superconductors are of particular interest for high-field applications because of their large upper critical fields H_{c2} (> 100 T), low anisotropy γ (< 2) and the materials and processes to fabricate wires appear to be relatively inexpensive. However, the porous nature of powder-in-tube (PIT) processed iron-based tapes is one of the important reasons for low critical current density (J_c) values. Here we report our recent achievement in the developing $\text{Sr}_{0.6}\text{K}_{0.4}\text{Fe}_2\text{As}_2$ tapes with transport J_c up to 1.2×10^5 A/cm² at 10 T and 4.2 K. More importantly, the field dependence of J_c turns out to be very weak, such that in 14 T the J_c still remains $\sim 1.0 \times 10^5$ A/cm². These J_c values are the highest ever reported so far for iron-pnictide wires and tapes, and have surpassed the threshold for practical application. These results clearly demonstrate that PIT pnictide wire conductors are very promising for high-field magnet applications.

Primary author: MA, Yanwei (Institute of Electrical Engineering, Chinese Academy of Sciences)

Presenter: MA, Yanwei (Institute of Electrical Engineering, Chinese Academy of Sciences)

Session Classification: M1OrD - Superconductor Materials I: Bulk and New Materials

Track Classification: ICMC-07 - Pnictides and New Superconducting Materials