Contribution ID: **1081** Type: **Contributed Oral Presentation**

M2Or1A-01: Advances in Bi-2212 Processing, Coil Fabrication, and Testing for High-Field Magnets

Tuesday, July 23, 2019 9:30 AM (15 minutes)

Bi-2212 is a round-wire, high temperature superconductor that develops high Jc for high-field magnets when it is overpressure (OP) processed. Recent advances in Bi-2212 powder, wire fabrication, and OP heat treatment have improved the performance of the Bi-2212 wire. We are designing, winding, OP heat treating, and characterizing the performance of Bi-2212 coils and comparing their measured performance with predicted performance. We are doing extensive studies to understand and control stress/strain in Bi-2212 coils at high field. To improve the OP heat treatment of coils, we modelled heat flow in the OP furnace and used these results to modify the furnace to create a longer, more homogeneous hot zone. We have OP heat treated about 30 coils in this furnace including coils fabricated in house and coils for the wider Bi-2212 community. These include solenoid and racetrack and we will soon heat treat canted-cosine-theta coils. We are designing and building a new OP furnace with a larger hot zone (1 m long x 29 cm diam) that was sized to OP heat treat the next generation of coils for the Bi-2212 community.

Primary authors: HELLSTROM, E.E. (Applied Superconductivity Center); BURUA, S. (Applied Superconductivity Center); BOSQUE, E.S. (Applied Superconductivity Center); BRADFORD, G. (Applied Superconductivity Center); BROWN, M. (Applied Superconductivity Center); COOPER, J. (Applied Superconductivity Center); DAVIS, D.S. (Applied Superconductivity Center); ENGLISH, C.L. (Applied Superconductivity Center); HOSSAIN, S.I. (Applied Superconductivity Center); JIANG, J. (Applied Superconductivity Center); KAMETANI, F. (Applied Superconductivity Center); KIM, Y. (Applied Superconductivity Center); LARBALESTIER, D.C. (Applied Superconductivity Center); LU, J. (Applied Superconductivity Center); MILLER, E. (Applied Superconductivity Center); MILLER, G.E. (Applied Superconductivity Center); OLOYE, A. (Applied Superconductivity Center); OZ, Y. (Applied Superconductivity Center); TROCIEWITZ, U.P. (Applied Superconductivity Center)

Presenter: HELLSTROM, E.E. (Applied Superconductivity Center)

Session Classification: M2Or1A - BSCCO - Conductors