

PASREG 2010

PROCESSING AND APPLICATIONS OF SUPERCONDUCTING (RE)BCO LARGE GRAIN MATERIALS

The 7th International Workshop on Processing and Applications of Superconducting (RE)BCO Large Grain Materials, PASREG 2010, was held at the historic Omni Shoreham Hotel, Washington, D.C., USA on July 29 – 31, 2010. The Workshop followed those held previously in Cambridge, U.K. (1997), Morioka, Japan (1999), Seattle, U.S.A. (2001), Jena, Germany (2003), Tokyo, Japan (2005) and Cambridge, U.K. (2007). The proximity of PASREG to the 2010 Applied Superconductivity Conference, which followed the workshop at the same venue, certainly helped to intensify discussions, foster exchange of information and to define future vision.

This year's PASREG was organized by the Texas Center for Superconductivity at the University of Houston and was chaired by Herbert C. Freyhardt, David A. Cardwell and Michael Strasik. The workshop was attended by about 50 participants from the US, Europe and the major Far Eastern countries, which contributed to a most open, stimulating and constructive atmosphere.

The scope of PASREG 2010 had been extended to reflect the evolving field over recent years. It covered not only processing and characterization aspects of the broader spectrum of bulk high-temperature superconducting materials, including melt-cast Bi-HTS and bulk MgB_2 , and recent developments in the field, but also innovative applications of bulk HTS. Large grain (RE)BCO bulk superconductors fabricated by top seeded melt growth (TSMG) are able to generate large magnetic fields compared to conventional, iron-based permanent magnets, or can be used to provide simple mechanisms for magnetic field-shaping. Following 20 years of development, these materials are now beginning to realize their considerable potential for a variety of engineering applications such as magnetic separators, flywheel energy storage, magnetic bearings or SuperTrans, a pilot superconducting levitation system for transportation. MgB_2 has also continued to emerge as a potentially important bulk superconducting material for engineering applications below 20 K due to its lack of granularity and to the relative ease with which complex shapes of this material can be fabricated.

The program of the 2½-day meeting consisted of over 30 oral presentations of invited and keynote contributions. The oral presentations were complemented by 7 posters, the highlights of which were discussed in a special session. A technical round table discussion (moderated by Dominic Lee & Herbert C. Freyhardt) was organized for the first time, with the aim of summarizing state-of-the-art achievements in processing, characterization and applications, to identify limitations to progress and efforts to overcome these, and to establish novel directions for future research.

A selection of papers presented at PASREG 2010 will be published in the last issue in the year 2010 of Superconductor Science and Technology and several in issue # 15 of CSC/ESAS European Superconductivity News Forum (www.ewh.ieee.org/tc/csc/europe/newsforum/). Most all presentations, as PDF files, can be found on the PASREG 2010 webpage (<http://www.pasreg2010.org/>).

The eighth PASREG Workshop will be held in Taiwan in the summer of 2012.