All-superconducting 32 T magnet with RE-Ba-Cu-O insert that we are building for NHMFL users. The magnet application potential of this new generation of 30 T. And then indeed, starting in the 1960s, Onnes’s dreams were comfortably surpassed. In the last 45 years virtually all superconducting magnets have been made from just two Nb-base materials, Nb-Ti and Nb3Sn. Now it seems that a new generation of magnets based on cuprate high temperature superconductors with fields well above 30 T are possible using Bi-Sr-Ca-Cu-O and the RE-Ba-Cu-O compounds. We hope that a first demonstration of this possibility will be an all-superconducting 32 T magnet with RE-Ba-Ca-O insert that we are building for NHMFL users. The magnet application potential of this new generation of superconducting conductors will be discussed.

12:27PM B7.00003 State of the art superconducting magnet development, GIANLUCA SABBI, LBNL — This abstract not available.

1:03PM B7.00004 RF Superconductivity: the ultimate limit, HASAN PADAMSEE, Cornell University — This abstract not available.

1:39PM B7.00005 Cryogenic Systems: Recent Trends and New Directions, JOHN WEISEND, NSCL Michigan State University — The production of reliable cryogenic temperatures is vital for the use of superconductivity in accelerators. Cryogenics is found in the accelerating structures and magnets of the accelerator as well as in the magnets and calorimeters of the detectors in the experimental areas. In the century since the discovery of superconductivity, cryogenic systems have gone from small laboratory devices to very large industrial scale systems involving multiple refrigeration plants, containing over 100 tonnes of liquid helium. These systems, while specialized, represent a mature, well understood technology. This paper will survey the current status of cryogenic systems in accelerators and describe recent trends including: the large scale use of He II (superfluid helium) and the development of higher reliability and higher efficiency systems. It will also discuss future directions including the increased use of HiTc current leads, possible applications for small cryocoolers and the potential impact of the world helium supply on accelerator cryogenics.