



Contribution ID: 37

Type: **not specified**

High power RF testing of high-temperature superconductors

Superconducting materials such as niobium have been extremely useful for accelerator technology but require low temperature operation ~ 2 K. The development of high temperature superconductors (HTS) is promising due to their operating temperatures being closer to that of liquid nitrogen ~ 77 K. This work aims to determine the high-power RF performance of these materials at X-band (11.424 GHz). We have tested several types of rare earth barium copper oxide (REBCO) materials, such as films deposited by electron-beam physical vapor deposition, coated conductors soldered to a copper substrate, and solid pucks formed from powder. RF testing was done via a hemispherical TE mode cavity that maximizes the magnetic field and minimizes the electric field on a 2-inch sample region. We will report on surface resistance vs temperature measurements at low and high power, as well as RF testing of a pulse compression cavity lined with REBCO coated conductors.

Primary author: DHAR, Ankur (SLAC National Accelerator Lab)

Co-authors: Prof. NANNI, Emilio (SLAC National Accelerator Lab); Dr LE SAGE, Greg (SLAC National Accelerator Lab); Mrs GOLM, Jessica (European Organization for Nuclear Research); Dr GUTIERREZ, Joffre (Institut de Ciència de Materials - CSIC); Dr KRKOTIC, Patrick (European Organization for Nuclear Research); Dr CALATRONI, Sergio (European Organization for Nuclear Research); Dr WUENSCH, Walter (European Organization for Nuclear Research)

Presenter: DHAR, Ankur (SLAC National Accelerator Lab)