



Contribution ID: 38

Type: Talk

Age Related Failure of K1200 Cyclotron Electrode at National Superconducting Cyclotron Laboratory

Thursday, October 19, 2017 12:10 PM (20 minutes)

The K1200 cyclotron is part of the Coupled Cyclotron Facility (CCF) at National Superconducting Cyclotron Laboratory (NSCL). It was built starting in 1987 and produced its first standalone beam in 1989. The expected life of the K1200 was estimated to be 20 years. In 2017, 28 years first beam, the K1200 continues to produce extremely useful science. As the cyclotrons age, maintaining their reliability has become more difficult and time consuming. After emerging from a three month planned maintenance shutdown at the beginning of 2017, there was an unprecedented failure of the upper half of one of accelerating electrodes. The troubleshooting process covered eight weeks, with an additional two weeks for repair and restart. The failure was a direct result of age related stresses of the copper skin of the C Upper electrode. There are a total of three electrodes in the K1200, each made up an upper and lower half. The other five halves of the electrodes are showing stresses similar to the electrode half that failed. Ensuring the K1200's reliability for the remainder of its newly projected life span is a top priority within the accelerator maintenance group at NSCL.

Primary author: Mr BONOFIOLIO, Jon (National Superconducting Cyclotron Laboratory at Michigan State University)

Presenter: Mr BONOFIOLIO, Jon (National Superconducting Cyclotron Laboratory at Michigan State University)

Session Classification: 13- Insuring Long Term Reliability

Track Classification: Insuring Long Term Reliability