27th International Conference on Magnet Technology (MT27)
Fukuoka, Japan / 2021

Contribution ID: **1045** Contribution code: **WED-PO2-105-06** Type: **Invited Poster**

[Invited] Stability of Nb3Sn Superconducting Planar Undulator for ANL Advanced Photon Source

Wednesday 17 November 2021 10:30 (20 minutes)

A project aiming to fabricate an operational Nb3Sn superconducting undulator for the storage ring of the Advanced Photon Source at Argonne National Laboratory is under way. The Nb3Sn undulator has a design magnetic field of 1.2 T and a nominal operation current of 850 A. The maximum magnetic field on the conductor is about 5 T. With large critical current densities, the 35 µm subelement size of the 0.6 mm Restacked Rod Processed wires with 144 superconducting subelements over 169 total is at the very limit of magnetic stability. The heat treatment has therefore been studied and optimized to obtain parameters within operation specifications. In this paper we show performance results on wires and coils from different heat treatments.

Primary author: BARZI, emanuela (Fermilab)

Co-authors: IVANYUSHENKOV, Yury (ANL); KASA, Matthew (Argonne National Laboratory); KESGIN, Ibrahim (Argonne National Laboratory); ZLOBIN, Alexander (Fermilab); TURRIONI, Daniele (FNAL (US))

Presenter: TURRIONI, Daniele (FNAL (US))

Session Classification: WED-PO2-105 Accelerator Magnets III: undulators and related magnets