**SOFT 2018** 



Contribution ID: 649

Type: not specified

## P2.077 TF Coil Inter-Layer Joint for EUROfusion DEMO Tokamak

Tuesday, 18 September 2018 11:00 (2 hours)

The Swiss Plasma Center (SPC) has developed a Toroidal Field (TF) layout for the EUROfusion DEMO tokamak, based on a reference baseline of 2015. Each TF coil winding pack consists of 12 single layers wound with Nb3Sn graded conductors, connected in series by inter-layer joints, which are embedded in the winding pack. The react-and-wind (R&W) manufacturing technique is foreseen for the TF coil winding and for the preparation of inter-layer joints. The development of inter-layer joint is being continued at SPC in 2018 in frame of R&D program for TF coil of EUROfusion DEMO tokamak.

The high-grade Nb3Sn conductor, operating at 63 kA and 12.4 T (Tcs >6.5 K) was tested at SPC, and afterwards was used for the preparation of TF coil inter-layer joint. The inter-layer joint is an "overlap-type" joint. The two ends of conductors are copper-plated by a plasma-spraying method and joined together by a diffusion bonding at applied pressure and temperature.

This paper describes the manufacture of inter-layer joint, the preparation of sample and the test results obtained at SPC in the SULTAN test facility.

**Presenter:** Dr STEPANOV, Boris (EPFL-SPC) Session Classification: P2