Contribution ID: **151** Type: **Invited Oral**

SUCCEX, 16 Tesla Superconducting Conductor Test Facility

Tuesday 10 June 2025 14:30 (40 minutes)

Korean Fusion Energy Development Promotion Law (FEDPL) was enacted in 2007 to promote a long-term cooperative fusion research and development among participating industries, universities and research institutes. As a following step, a conceptual design study for a steady-state Korean fusion demonstration reactor (K-DEMO) has been initiated in 2012. As a result of a conceptual design study for K-DEMO, the major and minor radii are 6.8 and 2.1 m, respectively, and toroidal field magnets of K-DEMO can generate around 8 T at plasma center with a peak magnetic field of ~16 T. For conductor tests under such a high magnetic field, a new conductor test facility is required and a 16 T conductor test facility is under construction. The conductor test facility, named SUCCEX (SUperConducting Conductor EXperiment), will feed the sample with a current up to 100 kA and the sample temperature will be varied from 4.5 K to ~20 K. The 16 T Nb3Sn magnet system, with a bore of 0.6 m diameter, is divided into two concentric split pairs, inner coil (IC, peak field of 16.2 T) and outer coil (OC, peak field of 12.4 T), connected in a series, with a nominal operating current of ~24.8 kA. The overall design and the current status of the project will be presented.

Country or International Organisation

Korea, Republic of

Affiliation

Korea Institute of Energy Technology

Speaker's email address

kkeeman@kentech.ac.kr

Author: KIM, Keeman (Korea Institute of Energy Technology)

Co-author: Dr OH, Yeongkook (Korea Institute of Fusion Energy)

Presenter: KIM, Keeman (Korea Institute of Energy Technology)

Session Classification: Magnets

Track Classification: Magnets