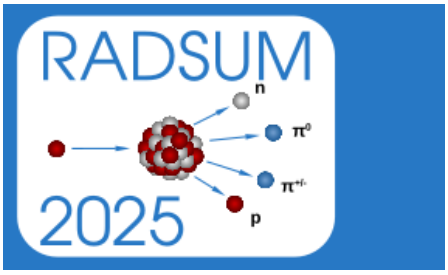

Contribution ID: **32** Type: **Oral contribution**

Design of COMET capture solenoid and shielding system

Friday 17 January 2025 11:00 (20 minutes)

As accelerators become more powerful, superconducting magnets used to generate and transport secondary particles such as muon sources are also required to have high radiation resistance. The COMET experiment at J-PARC requires the highest intense muon beam to search for rare processes beyond the Standard Model. The muon beam line is designed with high-field superconducting solenoids to capture pions and muons emitted from the production target. Although the target is surrounded by thick radiation shield, the magnet is expected to be exposed to severe radiation of neutrons and other particles from the target. The material in the magnet is carefully chosen to withstand in the high radiation environment. Especially irradiation effects in the stabilizer of the superconducting cable and heat transfer in the superconducting coils have been studied by performing series of irradiation tests. The design of COMET capture solenoid and shielding system will be described.

Author: YOSHIDA, Makoto

Presenter: YOSHIDA, Makoto

Session Classification: Design of superconducting magnets and shieldings for high-radiation environments