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Design and construction of the magnet-cryostat for the SuperKEKB Interaction Region

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SuperKEKB accelerator consists of 7 GeV electron and 4 GeV positron main rings (HER and LER). The target luminosity of SuperKEKB is 8×10^{35} which is 40 times higher than KEKB. After the Phase-1 commissioning operation of the accelerator, the construction of the superconducting final focus system Construction is progressing on schedule. The magnet-cryostats have being installed into the beam interaction region (IR). The QCSL magnet-cryostat, which is placed in the left side to the interaction point (IP), has 25 superconducting magnets including the superconducting corrector magnets, and the QCSR magnet-cryostat in the right side has 30 superconducting magnets. During the beam operation, the magnet-cryostats will have the electro-magnetic force over 40 kN from the particle detector solenoid field. In this paper, we would like to present the design of the magnet components and the required material in the cryostats from the beam operation and the physics experiment, and the construction conditions and the difficulties.

Submitters Country

Japan

Primary authors: OHUCHI, Norihito (KEK); Dr ARIMOTO, Yasushi (High Energy Accelerator Research Organization); YAMAOKA, Hiroshi (High Energy Accelerator Research Organization); TSUCHIYA, Kiyosumi (KEK); ZONG, Zhanguo (High Energy Accelerator Research Organization); Dr WANG, Xudong (High Energy Accelerator Research Organization, KEK); Mr KIM, Tae-Hyun (Mitsubishi Electric Corporation)

Presenter: OHUCHI, Norihito (KEK)

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