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Thermal studies of the magnet quenches of the SuperKEKB beam final focus system

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The beam final focus system of SuperKEKB consists of 55 superconducting magnets. They are 8 main quadrupole magnets, 43 corrector magnets and 4 compensation solenoids. During beam operation from 2018 to 2022, the superconducting magnets quenched 40 times induced by the electron or positron beam hitting the superconducting coils or the other disturbances. The temperatures of the quenched superconducting coils are being studied with the accumulated magnet quench data and the conditions of beam operation. The temperatures of the coils are evaluated with the critical temperature defined by the operation magnetic field and the transport current. The authors will report the temperature range of the superconducting coil shortly after the coil quench.

Footnotes

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Paper preparation format

Word

Region represented

Asia

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