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Overview of Radiation Shielding Design for HEPS Project

The HEPS project is the first high-energy synchrotron radiation light source in China, comprising a 74-meter-long Linac (with a beam energy of 500 MeV), a 453-meter circumference Booster (with a maximum beam energy of 6 GeV), a 1360-meter Storage Ring (also with a beam energy of 6 GeV), and 17 beamlines in the phase I.

The radiation protection group in IHEP is in charge of the radiation protection design for the entire project, which includes radiation shielding design, dose monitoring system, personnel protection system, and the management of operational radiation protection. This report gives an overview of the project progress until now, and particularly introduces the radiation shielding design for the HEPS project, covering the calculation methods and results for prompt radiation shielding design and induced radioactivity calculation; shielding design schemes for items such as the beam dump, radiation shielding doors, and mazes; shielding calculation methods for the beamline hutches; measures for radioactive waste management; and an assessment of the ionizing radiation impact on workers and the public during the operation of the project.

Currently, the HEPS project is in the installation and commissioning phase, with plans to complete the tuning by the end of December 2025.

Scientific Topic 1

Source terms, new accelerator facilities and related topics

Scientific Topic 2

Scientific Topic 3

Scientific Topic 4

Shielding and dosimetry

Scientific Topic 5

Scientific Topic 6

Scientific Topic 7

Scientific Topic 8

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