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Laser transport for the LW prototype at CSNS

Thursday 5 June 2025 15:30 (2 hours)

A laser wire monitor has bean developed at the China Spallation Neutron Source (CSNS).The monitor utilizes a 1064 nm laser source to measure the horizontal and vertical profiles of a negative hydrogen ion (H-) beam with an energy of 80 MeV in the injection zone. This paper describes the design of the laser optical path layout and the laser transmission performance of the system. The experiment focuses on the laser system's quality factor M2 of the laser after more than 60 meters of transmission as well as the beam pointing stability. In this experiment, the laser quality factor M2 after transmission is better than 4, and the beam pointing stability after focusing is less than ± 6.5 um, which is able to satisfy the required specifications for the first laser wire monitor of the CSNS.

Footnotes

Paper preparation format

LaTeX

Region represented

Asia

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