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Optical electron beam diagnostics at the Novosibirsk FEL

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We present an overview of recent and upcoming enhancements to the optical electron beam diagnostics stations at the Novosibirsk Free Electron Laser (FEL) facility. These diagnostic stations are designed to measure key beam parameters, including beam energy spread, length and emittance, at the third FEL of Novosibirsk FEL. Currently, the stations for measuring electron beam energy spread and undulator radiation spectrum are in the commissioning phase, with initial results already obtained. The new optical diagnostics are essential for the precise tuning of the magnet system used in electron outcoupling experiments. This paper provides a comprehensive overview of the new diagnostic systems, discusses the preliminary measurement results of beam parameters, and outlines the experiments planned for the near future.

Footnotes

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