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Thermal Load Analysis and Benchmark Study for Beamline of Low Emittance Storage Ring

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The Korea-4GSR with low emittance of 60 pm-rad provides the photon beam that is 100 times brighter and 100 times more coherent than PLS-II. Despite these powerful advantages, the new source imposes high power density on beamline optics. In particular, the first mirror M1 receiving broadband white beam will be directly affected. To check this, we calculated the power density by introducing a new ray-tracing algorithm. And this result is converted to temperature through Ansys steady-state thermal. The consistency of this calculation was evaluated as the measured value of M1 being monitored in PLS-II BL8A. This paper shows the results of the above.

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Footnotes

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Yes

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