

# Preliminary Design of the Beam Loss Monitoring System for the SNS

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The SNS to be built at Oak Ridge National Laboratory will provide a high average intensity 1 GeV beam to produce spallation neutrons. Clearly even small percentage loss of such an intense beam would result in high radiation areas near the accelerator. The Beam Loss Monitor (BLM) system must be able to detect such small, long term losses to prevent this yet at the same be capable of measuring infrequent short high losses. The large dynamic range presents special problems for the system design. Ion chambers will be used as the detectors. Concerns about ion collection times and low collection efficiency at high loss rates may require a new design. The requirements and design concepts of the proposed approach will be presented. Discussion of the design and testing of the prototype ion chamber and analog front end will be included.

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