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Application of Bayesian optimization for the TLS booster extraction

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Bayesian optimization is a method for performing global optimization on black-box functions using Gaussian processes and an acquisition function. In accelerator parameter tuning, when the number of adjustable parameters is large, finding the global optimal parameters can be time-consuming and often relies on the operator's experience. Bayesian optimization is well-suited for such scenarios. In this report, we take the booster extraction of the Taiwan Light Source (TLS) as an example, selecting six key adjustable parameters to optimize the extraction efficiency from the booster ring to the transport line. The preliminary test results and implementation details will be discussed in this paper.

Footnotes

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