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Enhancing beam intensity in RHIC EBIS beam line via GPTune machine learning-driven optimization

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The utilization of machine learning techniques in accelerator research has yielded remarkable advancements in optimization strategies. This paper presents a pioneering study employing a machine learning algorithm, GPTune, to optimize beam intensity by adjusting parameters within the EBIS injection and extraction beam lines. Demonstrating significant enhancements, our research showcases a remarkable 22% and 70% improvements in beam intensity at two different measurement locations.

Footnotes

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