IPAC'24 - 15th International Particle Accelerator Conference



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MENT-Flow: maximum-entropy phase space tomography using normalizing flows

Wednesday, 22 May 2024 16:00 (2 hours)

Generative models can be trained to reproduce low-dimensional projections of high-dimensional phase space distributions. Normalizing flows are generative models that parameterize invertible transformations, allowing exact probability density evaluation and sampling. Consequently, flows are unbiased entropy estimators and could be used to solve the high-dimensional maximum-entropy tomography (MENT) problem. In this work, we evaluate a flow-based MENT solver (MENT-Flow) against exact maximum-entropy solutions and Minerbo's iterative MENT algorithm in two dimensions.

Footnotes

Funding Agency

Paper preparation format

LaTeX

Region represented

North America

Primary author: HOOVER, Austin (Oak Ridge National Laboratory)

Co-author: WONG, Chun Yan Jonathan (Institute of Modern Physics, Chinese Academy of Sciences)

Presenter: HOOVER, Austin (Oak Ridge National Laboratory)

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