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Machine learning phase transitions in a scalable manner

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Machine learning is becoming an established area of research in lattice field theories, with prominent applications to phase classification, configuration generation, and noise reduction. When moving beyond the toy models, scalable methods to learn phases of matter are needed. In this talk, we compare two possible avenues to speed up the methods for classifying phase transitions in the 2D Ising model: parallelization of kernel methods, and quantum machine learning. Finally, we discuss the extension of the two approaches to the low-dimensional quantum field theories.

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Session Classification: Algorithms (including Machine Learning, Quantum Computing, Tensor Networks)

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