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Quantum phase detection generalisation from marginal quantum neural network models

Quantum machine learning offers a promising advantage in extracting information about quantum states, e.g. phase diagram. However, access to training labels is a major bottleneck for any supervised approach, preventing extracting insights about new physics. In this work, using quantum convolutional neural networks we overcome this limit with the determination of the phase diagram of a model where no analytical solutions are known, by training on marginal points of the phase diagram where integrable models are represented. More specifically, we consider the Axial Next Nearest Neighbor Ising (ANNNI) Hamiltonian, which possesses a ferro-, para-magnetic and antiphase and we show that the whole phase diagram can be reproduced.

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Short summary of your poster content

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Poster printing

Yes

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