Contribution ID: **5** Type: **not specified**

Machine learning with quantum field theories

Monday, 27 September 2021 16:40 (30 minutes)

The exact equivalence between lattice field theories and the mathematical framework of Markov random fields opens up the opportunity to investigate machine learning from the perspective of quantum field theory. In this talk we prove Markov properties for the ϕ^4 theory and we then derive ϕ^4 neural networks which can be viewed as generalizations of conventional neural network architectures. Finally, applications pertinent to the minimization of an asymmetric distance between the probability distribution of the ϕ^4 machine learning algorithms and target probability distributions are additionally presented.

Presenter: BACHTIS , Dimitrios (Swansea University (UK))

Session Classification: Session 2