

## Applying machine learning methods to prediction problems of lattice observables

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This talk is devoted to machine learning methods applied to predict the critical behavior of lattice observables, in particular at the confinement / deconfinement phase transition in SU (2) and SU (3) gauge theories. We find that at the phase of deep deconfinement the neural network, trained on the lattice configurations of gauge fields as input data, finds correlations with the target observable (Polyakov Loop), which is also true in the critical region of the parameter space where the neural network wasn't trained. We have verified that the neural network constructs a gauge-invariant function, and this property doesn't change over the entire range of the parameter space.

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