

Machine Learning for phase transitions and sign problem mitigation

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Explore : mitigate the sign problem to access uncharted territories

Improve: quantitative knowledge of phase transitions

Discover/Uncover: unknown/not-yet-observed phase transitions

?

$x_c, \nu, \beta, \eta \dots$

Machine Learning for phase transitions and sign problem mitigation

-ML for exploration:

How do you assess the potentiality of ML to mitigate the sign problem in any setting of your interest. How do you compare ML with other approaches in simple cases?

-ML for precision:

Do you feel ML could become competitive with standard techniques for the quantitative studies of phase transitions, at least in some cases, and, possibly, in which ones? That includes the 'many parameters at once' capability of ML.

-ML for discovery :

Which are your views on the need/concrete possibility of identifying hypothesised, not yet detected phase transitions, or even 'new' ones - in strong interaction physics, we may think of confinement, axial restoration, anomalous threshold in the QGP