

# Physics Theory Seminar

Thursday, March 1, 2018 / Pupin Hall Theory Center, 8<sup>th</sup> Floor / 11:15 AM

## “Learning Quantum Emergence With AI”

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The application of artificial neural network to central questions in the theory of quantum matter is a rapidly developing field. The insight driving the field is that the problems of theoretical interests are primarily those of regression in which an exponentially large volume of data must be condensed into a more accessible or meaningful form, e.g., labeled with phases. In this talk, I will review the state of this rapidly developing field. I will then showcase how my group built and taught neural networks to recognize topological phases, different non-equilibrium phases and universal features from scanning tunneling microscopy data. I will then discuss new insights from the synergy between human intelligence and artificial intelligence: the key to our success.

