

Thomas Luu – Colloquium – January 9, 2020

Title: "Going beyond lattice QCD: How lattice stochastic methods are used in other areas of physics"

Abstract:

The universality of lattice stochastic methods means that many areas of physics potentially benefit from this non-perturbative numerical tool, and not just lattice QCD. In this talk I give a cursory overview of lattice stochastic methods and its connection to the path-integral formalism, and indeed show that lattice QCD does NOT hold a monopoly on this numerical tool by showing how other areas of physics utilize and benefit from lattice stochastic methods. I give specific examples in condensed matter physics, solid-state physics, and neuroscience. Finally, I show how stochastic methods developed in one field can benefit other fields, and vice versa.