



清华大学高等研究院

Institute for Advanced Study, Tsinghua University

物理学术报告

Physics Seminars (biweekly)

Title: AI+Quantum: Machine Learning Meets Quantum Science

Speaker: Di Luo (Department of Physics, Tsinghua University)

Time: 4:00 pm, Tuesday, October 14, 2025

Venue: Conference Hall 322, Science Building, Tsinghua University

Abstract

The intersection of quantum computation and machine learning represents a new frontier in science and technology. In this talk, I will first present how generative models for quantum states, enriched with symmetries and physics principles, opens up novel avenues for addressing the challenges posed by high-dimensional simulation of quantum systems. It offers new opportunities to the study of high energy physics, quantum materials, quantum information and computation. Meanwhile, I will discuss recent explorations for developing machine learning and robotics methods powered by physics and quantum theories. This includes the development of a family of generative models grounded in various physical processes, the creation of efficient neural network solvers for generic PDEs inspired by quantum principles, and the optimization of multi-legged robots' locomotion through many-body physics theory.

Bio

罗迪，清华大学物理系副教授。此前，他曾任美国加州大学洛杉矶分校（UCLA）助理教授。2021年至2024年间，他担任美国人工智能与基本相互作用研究所IAIFI Fellow，同时是麻省理工学院（MIT）理论物理中心与哈佛大学（Harvard）物理系博士后。2021年，他在伊利诺伊大学厄巴纳-香槟分校（UIUC）获得数学与物理双硕士学位及物理学博士学位。2016年，他毕业于香港大学，获物理学与数学双学士学位。他的研究聚焦在AI+Science和量子计算，包括发展AI和量子算法用于量子材料、高能物理和量子信息的科学模拟和发现，以及利用量子物理和统计物理发展构建AI理论和模型。