Contribution ID: **78** Type: **Talk**

Gauge symmetric transformer for lattice gauge theory

Monday, 29 July 2024 11:55 (20 minutes)

In this talk, we will discuss transformers that preserve gauge symmetry and their applications. Gauge symmetry is crucial in lattice QCD. There has been significant progress in accelerating lattice calculations using machine learning, particularly neural networks. Meanwhile, in the field of machine learning, transformers such as GPT have rapidly advanced and transformed society. Transformers excel at capturing long-range correlations in data and handling data with local causal structures, such as language. In this study, we have formulated a transformer that preserves gauge symmetry. This presentation will cover the fundamental aspects of this research and the results of practical calculations.

Primary authors: Prof. TOMIYA, Akio (Tokyo Woman's Christian University); Prof. OHNO, Hiroshi (University of Tsukuba); Prof. NAGAI, Yuki (University of Tokyo)

Presenter: Prof. TOMIYA, Akio (Tokyo Woman's Christian University)

Session Classification: Algorithms and artificial intelligence

Track Classification: Algorithms and Artificial Intelligence