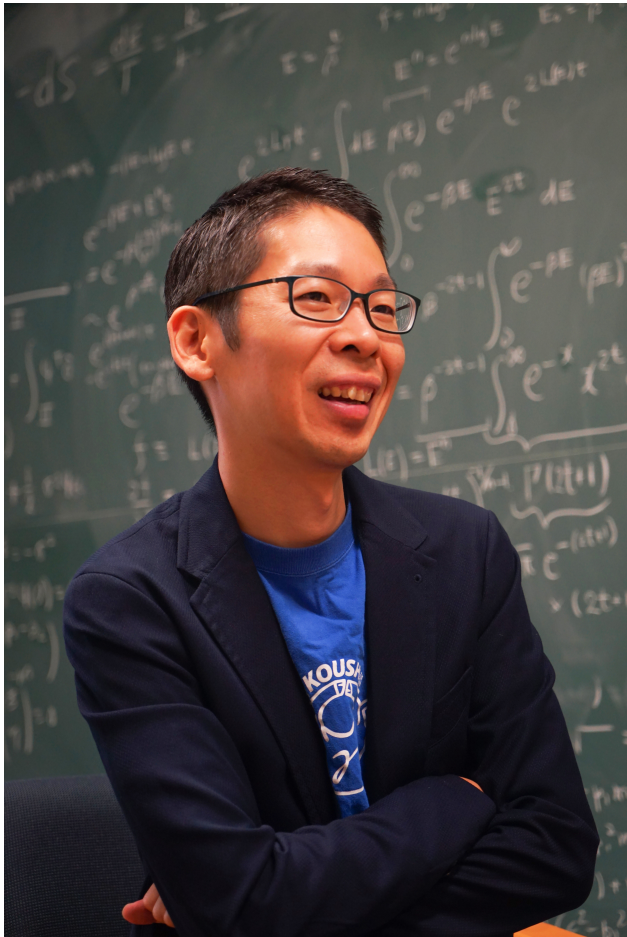


KMI Colloquium

Deep learning and ADS/CFT



Koji HASHIMOTO
(Osaka Univ.)

Wednesday, 24th Oct. 17:00-18:00
KMI Science Symposia (ES635)

Abstract:

Deep learning is an advanced technology for artificial intelligence, and the research on it is developing rapidly in these years. The concept is based on neural networks and learning algorithms, while the basis has a lot of similarity to physical concepts such as differential equations, discretization, statistical averaging and renormalization. Here we implement the deep neural network scheme into the AdS/CFT correspondence, a renowned quantum gravity formulation. The neural network is identified with the bulk gravity spacetime, and the input data such as lattice QCD data as for the boundary QFT will automatically let the bulk metric "emerge", and with the emergent metric we can calculate other QCD observables such as Wilson loops. We discuss possible relation between quantum gravity and deep learning, also from the viewpoint of solving inverse problems, which deep learning is generically good at.

