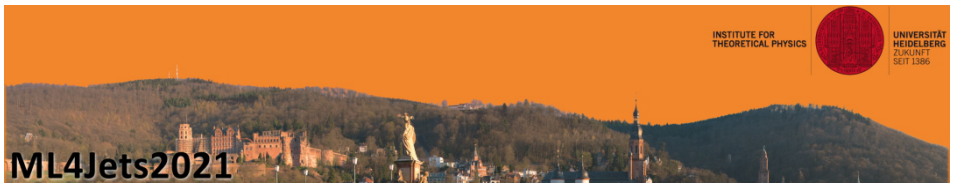

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Equivariant energy flow networks for jet tagging

Tuesday 6 July 2021 09:20 (20 minutes)

The Energy Flow Network (EFN) is a neural network architecture that represents jets as point clouds and enforces infrared and collinear (IRC) safety on its outputs. In this talk, I will introduce a new variant of the EFN architecture based on the Deep Sets formalism, incorporating permutation-equivariant layers. I will discuss the conditions under which IRC safety can be maintained in the new architecture and showcase the performance of these networks on the canonical example of W-boson tagging. The equivariant EFNs have similar performance to Particle Flow Networks, which are superior to standard EFNs. Finally I will comment on how the equivariant networks sculpt the jet mass compared to unaugmented EFNs.

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Session Classification: New architectures