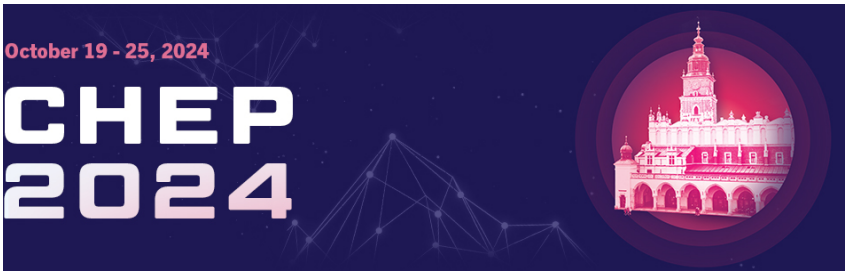

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Jet reconstruction with quantum-annealing-inspired algorithms

Thursday 24 October 2024 17:09 (18 minutes)

Jets are key observables to measure the hadronic activities at high energy colliders such as the Large Hadron Collider (LHC) and future colliders such as the High Luminosity LHC (HL-LHC) and the Circular Electron Positron Collider (CEPC). Yet jet reconstruction is a computationally expensive task especially when the number of final-state particles is large. Such a clustering task can be regarded as an optimization problem, which can be formulated in terms of an Ising Hamiltonian and searching for its ground state would provide the answer. Quantum-annealing-inspired algorithms provide promising solutions to tackle the problem. This study opens up a new approach to globally reconstruct multijet beyond dijet in one-go, in contrast to the traditional iterative method.

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