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Monte-Carlo simulation of jets in heavy-ion collisions

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I present recent developments in simulating heavy-ion collisions using a Monte-Carlo event-generator to study high momentum probes. The simulation contains medium effects on the hard probes via the elastic and radiative energy loss and momentum broadening. The lower momentum bulk medium is simulated using relativistic hydrodynamics.

Apart from inclusive observables such as the nuclear modification factor, I present results for the dijet asymmetry measured at the Large Hadron Collider, employing state of the art jet reconstruction methods.

I demonstrate that Monte-Carlo simulations are an essential tool for connecting fundamental theory to experiments and extracting important information about the properties of the medium created in heavy-ion collisions and its interactions.

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