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# „How Glasma evolves to Quark-Gluon Plasma: turbulent attractor to perfect fluid“

Collisions of ultra relativistic heavy nuclei at the Relativistic Heavy Ion Collider (RHIC) in the US and at the Large Hadron Collider (LHC) in Europe create ephemeral droplets of Quark-Gluon Plasma (QGP), the hottest matter on earth, with temperatures up to 5 trillion Kelvin. Experiments at RHIC and the LHC provide strong evidence that the QGP flows briefly as a nearly perfect fluid, with very little resistance to its motion. After an introduction to the QGP and its properties, we will focus on its primordial state, the Glasma - a state of highly occupied, strongly correlated gluons - and describe some of its remarkable properties. These include a turbulent attractor identical to one observed in similarly prepared cold atomic gases, and off-equilibrium topological “sphaleron" transitions that generate an anomalous Chiral Magnetic current. We shall discuss how even smaller sized systems such as high multiplicity proton-proton and proton-nucleus collisions can provide deeper insight into the thermalization of the Glasma into the Quark-Gluon Plasma.