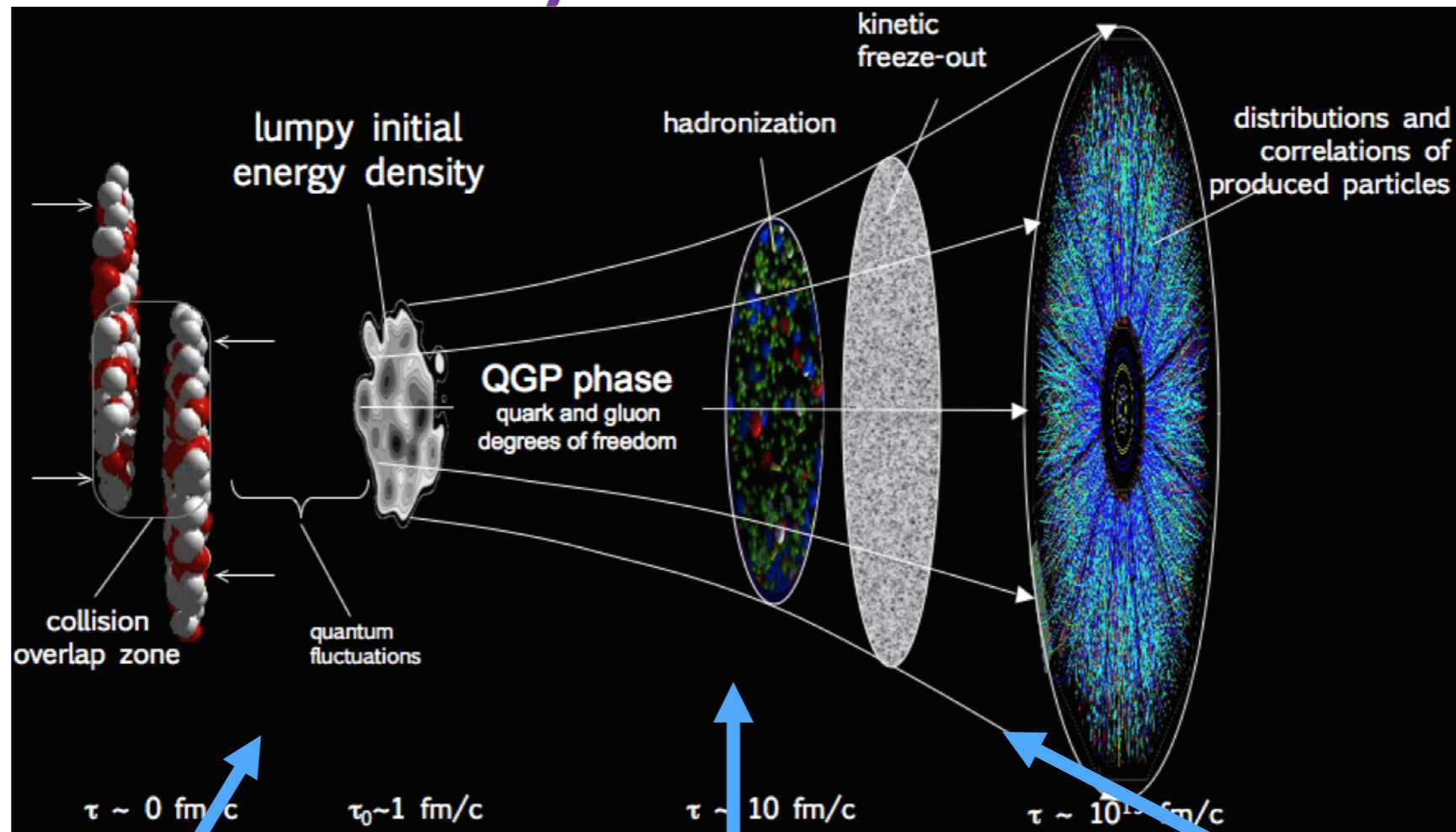


Study of polarisation in heavy ion collision



- The goal of the project is the study of the polarization of particle produced in heavy ion collision
- The project is challenging since it require expensive 3+1 viscous fluid-dynamic simulation of the nuclear collision done on event event basis.
- The study of the polarization is a very active subject of research in the field and its measurement was highlighted by the Nature magazine.

Heavy ion Collision



Event by event Initial state models

- Ip-Glasma (CGC)
- Trento (Glauber)
- Glissandro (Glauber)
- KOMPOST (Kinetic)

Hydro Evolution

- **ECHO-QGP**
- vhle
- Trajectum
- Vishnu
- Music

Hadronic Transport

- UrQMD
- Smash
-

For each event one needs to
run a chain of codes

Study of polarisation in heavy ion collision

- The polarization is sensitive to the 3D structure of the collision and is a unique observable to open a window on the longitudinal physics of the system.
- However, an accurate comparison with the observed polarisation data is challenging at LHC since all the other observables have to be tuned to the data, what is yet to be done.
- During this project we will employ the code already used in previous studies (mainly at RHIC) for the comparison of the different dataset at LHC energy-VHLL and ECHO-QGP.
- We will also developed new algorithms for solving accurately the viscous fluid dynamic equations.