Calculation of the viscosities and the heat conductivity of hot and dense hadronic matter

Osamu Miyamura ?? Shin Muroya ?? Chiho Nonaka ??
Nobuo Sasaki ??

[a] *Dept. of Phys., Hiroshima Univ. Higashi-Hiroshima 739-8526, Japan*
[b] *Tokuyama Women's Coll., Tokuyama, 745-8511, Japan*

Presented by: Shin Muroya

Abstract

We evaluate viscosities and heat conductivity of hot and dense hadronic matter based on the event generator URASiMA (Ultra-Relativistic AA collision Simulator based on Multiple Scattering Algorithm) which has been so improved as to keep the detailed balance. Applying the URASiMA to the hadronic system in the box, we can obtain equilibrium ensembles for the hot and dense hadronic matter. The statistical ensembles enable us to calculate viscosities and heat conductivity through the linear response theory. We discuss temperature dependence and baryon number dependence of the transport coefficients in detail, and entropy production in hadronic era is also investigated.

Preprint submitted to Elsevier Preprint *20 December 2000*