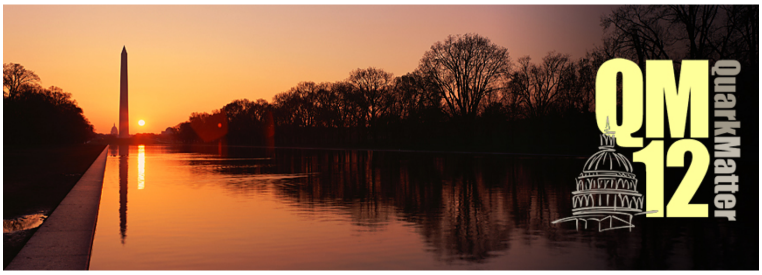

Contribution ID: **80** Type: **Poster**

Transition From Ideal To Viscous Mach Cones In A Kinetic Transport Approach

Thursday, 16 August 2012 16:00 (2 hours)

Using a microscopic transport model we investigate the evolution of conical structures originating from the supersonic projectile moving through the hot matter of ultrarelativistic particles. Using different scenarios for the interaction between projectile and matter, and different transport properties of the matter, we study the formation and structure of Mach cones. Especially, a dependence of the Mach cone angle on the details and rate of the energy deposition from projectile to the matter is investigated. Furthermore, the two-particle correlations extracted
from the numerical calculations are compared to an analytical approximation. We find that the propagation of a high energetic particle through the matter does not lead to the appearance of a double peak structure as observed in the ultrarelativistic heavy-ion collision experiments. The reason is the strongly forward-peaked energy and momentum deposition in the head shock region. In addition, by adjusting the cross section we investigate the
influence of the viscosity to the structure of Mach cones. A clear and unavoidable smearing of the profile depending on a finite ratio of shear viscosity to entropy density is clearly visible.

Primary author: BOURAS, Ioannis (University of Frankfurt a.M.)

Co-authors: EL, Andrej (University of Frankfurt); GREINER, Carsten (University of Frankfurt); NIEMI, Harri (Frankfurt Institute for Advanced Studies); FOCHLER, Oliver (Goethe-Universität Frankfurt); XU, Zhe

Presenter: BOURAS, Ioannis (University of Frankfurt a.M.)

Session Classification: Poster Session Reception

Track Classification: Global and collective dynamics