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The Equation of State of weak hadron gas from microscopic model

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The Equation of State (EoS) of a hot and dense hadron matter is studied using a microscopic transport model which can support the Large Hadron Collider energies of up to $\sqrt{s_{nn}} = 14$ TeV, namely the Ultra-relativistic Quantum Molecular Dynamics (UrQMD). The molecular dynamics simulation is performed for a system of light meson species (π ; ρ ; K) in a box with periodic boundary conditions. The equilibrium state is investigated by studying the chemical equilibrium and the thermal equilibrium of the system. The particle multiplicity equilibrates with time, and the energy spectra of different light meson species have the same slopes and common temperatures when thermal equilibrium is reached. The solution of the EoS allows for better understanding of the final state of interactions, which is dominated by hadrons produced during ultra-relativistic heavy ion collisions.

Apply to be considered for a student award (Yes / No)?

yes

Level for award (Hons, MSc, PhD, N/A)?

MSc

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