



ID de Contribution: 63

Type: **Non spécifié**

Delta resonance mass distribution in AA collisions

vendredi 8 novembre 2024 15:30 (25 minutes)

The statistical hadronization model is known to describe very well the yields of particles produced in heavy-ion collisions at LHC, RHIC, and SPS over many orders of magnitude. Recently, we have shown [1,2] that at lower energies, not just yields but also spectra of the most abundant particles containing u and d quarks can be reproduced in the thermal model.

Strangeness, heavy compared to the temperature and rarely produced, is not expected to thermalize at low energies. Instead, further insights can be gained by studying baryonic resonances, which are excited in large amounts in the system at high net-baryon density (high baryochemical potential).

In this talk, we will discuss Delta(1232) production using the thermal Monte Carlo event generator THERMINATOR 2, where we have implemented a finite width of the resonance based on the S-matrix theory [3]. Model predictions will be confronted with the unique set of experimental results published by the HADES collaboration [4]. Perspectives on continuing the study with other HADES measurements and the forthcoming CBM at FAIR will also be discussed.

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