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(Anti)nucleosynthesis in heavy-ion collisions and (anti)nuclei as "baryonmeter" of the collision (ALICE)

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The production mechanism of light (anti)nuclei in heavy-ion collisions has been extensively studied experimentally and theoretically for many decades. Two competing (anti)nucleosynthesis models are typically used to describe light (anti)nuclei yields and their ratios to other hadrons in heavy-ion collisions: the statistical hadronization model (SHM) and the nucleon coalescence model. The possibility to distinguish these phenomenological models calls for new experimental observables. On a different front, given their large baryon number, light (anti)nuclei have a high sensitivity to the baryon chemical potential (μ_B) of the system created in the collision.

In this talk, the first measurement of event-by-event antideuteron number fluctuations in heavy-ion collisions is presented and compared with expectations of the SHM and coalescence model. In addition, the antinuclei-to-nuclei ratios are used to obtain a measurement of μ_B in heavy-ion collisions with unprecedented precision.

Present via

Offline

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