

## **Momentum dependence of light nuclei production in p-p, p-Pb and Pb-Pb collisions at the CERN Large Hadron Collider**

We study the momentum dependence of the production of light nuclei in high energy collisions in the nucleon coalescence/recombination mechanism.

We derive formulas of the momentum distributions of deuterons ( $d$ ) and helions ( ${}^3\text{He}$ ).

We obtain the analytic expressions of the coalescence factor  $B_A$ 's ( $B_2$  for  $d$  and  $B_3$  for  ${}^3\text{He}$ ) as functions of the collision system size and the momentum.

We apply the deduced results to p-p, p-Pb and Pb-Pb collisions to naturally explain the interesting behaviors of  $B_A$  observed in experiments at the CERN Large Hadron Collider.

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