## Abstract Submitted for the SES16 Meeting of The American Physical Society

Calculation of coalescence parameters in Monte Carlo models TONY PEREZ, University of Tennessee, Knoxville, NATASHA SHARMA, Department of Physics, Panjab University, Chandigarh, India, ANDY CASTRO, CHRIS-TINE NATTRASS, University of Tennessee, Knoxville, PAUL STANKUS, Oak Ridge National Laboratory — High energy collisions between heavy nuclei release sufficiently high energies to result in the deconfinement of the constituent quarks and gluons of the colliding hadrons, producing a strongly interacting quark-gluonplasma (QGP). The production of light nuclei in relativistic heavy ion collisions has been described using recombination of nucleons in the hadronic phase of the collision. The production of deuterons is quantified using the coalescence parameter  $B_2$ , the spectrum of deuterons divided by the spectrum of protons squared. A similar coalescence parameter,  $B_3$ , the <sup>3</sup>He or triton spectrum divided by the proton spectrum cubed, is used to quantify the production of tritons and  ${}^{3}\text{He}$ . The increase of  $B_2$  with momentum observed in Pb-Pb collisions has been hypothesized to be due to an increase in correlated nucleons with momentum due to either flow or jet production. These hypotheses are difficult to test in Monte Carlo models because most Monte Carlo models do not include coalescence, and some, such as PYTHIA, do not include deuteron production by default. We developed an afterburner to implement coalescence in Monte Carlo models and apply it to several Monte Carlo models in order to test whether the coalescence parameters observed in the data are consistent with flow or jets. We further explore the use of high-pT hadron-deuteron correlations as a means to distinguish deuteron production in jets from production in the bulk.

> Tony Perez University of Tennessee, Knoxville

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