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What does the yield of light nuclei tell us about relativistic heavy ion reactions

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The yield of hadrons and light nuclei are described remarkable well by a very simple statistical hadronization model. The assumptions underlying this model are that below a certain temperature the system is well described by an equilibrated gas of hadrons that are sufficiently weakly interacting that their density is given by the density of noninteracting particle of the appropriate mass and that all of the species including the light nuclei chemically freeze out at the same temperature. At the LHC this temperature is approximately 155 MeV. This talk uses the light nuclei as a probe of the assumptions underlying the model. There is very strong evidence that the behavior of the light nuclei is incompatible with these assumptions.

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