

## Nuclear shapes and spectator production

*Tuesday 24 September 2024 18:10 (20 minutes)*

The production of spectator neutrons depends sensitively on the distribution of neutrons within a nucleus. In this talk we describe a relatively complete model that takes into account clusters forming among the spectators (charged or uncharged), the decay of such clusters using the Gemini code and lastly secondary neutrons produced by participant nucleons. With this model we calibrate our parameters by a Bayesian analysis using the measured ZDC signal and its variation as a function of centrality for collisions of  $^{208}\text{Pb}$ . Our model motivates a careful analysis of both neutron and proton spectators during the upcoming oxygen special run at the LHC.

### Category

Theory

### Collaboration

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