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Uncertainties in the initial electromagnetic fields of heavy-ion collisions from Glauber modeling

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Intense electromagnetic fields are formed in high-energy heavy ion collisions by the positively charged colliding ions. According to phenomenological models, charged observables produced in the collisions are affected by those electromagnetic fields [1]. However, the initial stages of the fields are not yet understood. We will discuss how the uncertainties in Glauber modeling of the colliding nucleons impact the initial EM fields. Those uncertainties are primarily from the Woods-Saxon (2-Fermi) parameterization from nuclear modeling. Quantifying the impact is important for interpreting experimental results using phenomenological models like magnetohydrodynamics.

[1] arXiv::2502.04611 [nuc-th]

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