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GLISSANDO 3: the known software tool with new possibilities

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Fluctuations in physics observables and flow effects in heavy-ion collisions have been topics of particularly interest in recent years as they may provide important signals regarding the formation of quark-gluon plasma, the existence of a critical point and the evolution of the system. Moreover, the fluctuations and correlations measured in the final stage have their sources at least partly in the initial fluctuations and the initial-state geometry provided the initial effects are not largely altered by the intermediate evolution of the system. GLISSANDO is a versatile Monte-Carlo generator for Glauber-like models of the initial stages of ultra-relativistic heavy-ion collisions. The current version incorporates the wounded parton model and, within this model, one can study nucleon substructure fluctuation effects. The code also includes the possibility of investigating collisions of light nuclei as ^3He and ^3H , or the alpha-clustered ^7Be , ^9Be , ^{12}C , ^{16}O , where the deformation of the intrinsic wave function influences the transverse shape of the initial state. The code can provide output in the format containing the event-by-event source location, which may be further used in modeling the intermediate evolution phase with hydrodynamics or transport models.

The distributions which illustrate the new features implemented in GLISSANDO 3 will be presented. The potential use of the software tool for the sophisticated analysis and the interpretation of data on relativistic heavy-ion collisions will be discussed.

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