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The GECO project

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A fundamental aspect of a successful physics experiment is the availability of a reliable and precise simulation code. In particular, Geant4 has seen a large expansion of its user community in recent years. Currently, the toolkit does not allow the simulation of particles interacting with other than amorphous states of matter. The GECO project is devoted to the development a general framework for the management of solid-state structures in the Geant4 kernel and to validate it against experimental data. The development of a Geant4 extension for the handling of crystal structures would allow the simulation of the mutual influence of various physics fields, and the exploration of novel applied physical effects. The enhanced Monte Carlo code will permit the combination of solid-state and nuclear effects for the study of nuclear interaction rate in crystals.

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