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Fragment Impact Toolkit: A Toolkit for Modeling Fragment Generation and Impacts on Targets DANIEL SHEVITZ, LARRY LUCK, Los Alamos National Laboratory — In this talk we will detail the status of the Fragment Impact Toolkit. The toolkit is used to model nearby explosion problems and assess probabilities of user-specified outcomes. The toolkit offers a framework, without locking the user into any particular set of states, assumptions, or constraints. The toolkit breaks a fragment impact problem into five components, all of which are extendable: (1) source description that includes the geometry of the source; (2) fragment generation that comprises the fragmentation process, including fragment size distributions (if required) and assignment of initial conditions, such a velocity; (3) fragment flight that includes what occurs to fragments while airborne; (4) target intersection that includes specification of target geometry, position, and orientation; and (5) target consequence that includes what occurs when fragments hit a target. Two notable contributions of the toolkit are the ability to have sources that break up with position-dependent and user-specifiable size probability distributions and then impact targets of arbitrary complexity. In this paper we will show examples of how to use the toolkit and simulate targets, including airplanes and stacks of munitions.

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