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Modeling Spallation Damage in Laser Driven Flyer Plate Experiments DAVIS TONKS, DENNIS PAISLEY, Los Alamos National Laboratory, PEDRO PERALTA, Arizona State University, SCOTT GREENFIELD, DARRIN BYLER, SHENGNIAN LUO, DAMIAN SWIFT, Los Alamos National Laboratory, AARON KOSKELO — The TRIDENT laser at Los Alamos has been used to drive small plate impact experiments. Flyers are typically 8 mm in diameter and 0.1 to 1.0 mm thick, while the targets are 10 mm in diameters and 0.2 to 2.0 mm thick. The sample materials are polycrystalline copper and copper composed of large columnar grains. The latter samples reveal information about damage in single crystals and bi-crystals. This work will focus on simulating these experiments to reveal the stress loading histories and to evaluate damage modeling. As part of the former activity, the damage patterns in recovered samples due to edge effects will be explored with a conventional hydrocode and the TEPLA damage model. A crystal plasticity model in the ABAQUS hyrdocode will be used to assess the damage seen in the columnar samples. Models of void nucleation at special grain locations and dynamical void growth will be explored.

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