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Simulations of spall experiments in 316L stainless steel conducted with square and triangular waves LYNN SEAMAN, SRI International, G.T.(RUSTY) GRAY III, Los Alamos National Laboratory — Triangular stress waves are more like those from applications (laser, explosives, nuclear) but laboratory experiments for studying spall damage generally provide square-topped waves. Gray et al (2003) performed four impact experiments in 316L stainless steel, two with square waves and two with triangular, achieving void damage in all but the lower-stress (6.6 GPa) triangular-wave sample. Simulations with the nucleationand-growth model DFRACT exhibit fair correspondence with the damage in those tests showing damage, but also indicate damage in the triangular-wave test showing no damage. We are examining mechanisms which may delay the initiation of void damage or otherwise alter the expected damage processes in the model. Reference: G.T. (Rusty) Gray III, N. K. Bourne, B.L. Henrie, and J.C.F. Millet, Influence of Shock-Wave Profile Shape (Triangular "Taylor-Wave" versus Square-Topped) on the Spallation Response of 316L Stainless Steel, J. Phys. IV France 110 (2003), page 773-778,

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