

Abstract Submitted
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Numerical Simulations of Lateral Stress Profiles BRYAN CHEESEMAN, DATTATRAYA DANDEKAR, U.S. Army Research Laboratory — A series of numerical simulations have been conducted to provide insight into the observed lateral stress profiles in shocked silicon carbide reported in [1]. Utilizing a coupled eulerian-lagrangian simulation approach, the thin epoxy layer has been included in the model. When utilizing the Johnson-Holmquist ceramic model with the constants published in [2], the two-step structure of the lateral stress measurement has been successfully reproduced. The influence of the epoxy layer on the development of the stress profile will be discussed. Additional simulations of specimens having buffer plates will be performed to simulate the lateral stress profile.

[1] Millett, J.C.F., Bourne, N.K. and Dandekar, D.P. 2005. “Delayed failure in shock-loaded silicon carbide,” *J. Appl. Phys.* 97, 113513.

[2] Holmquist, T.J. and Johnson, G.R., 2002. “Response of silicon carbide to high velocity impact,” *J. Appl. Phys.* 91, 5858-5866..

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