

Abstract Submitted
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Influence of tensile duration on dynamically induced damage evolution of OFHC PEI XIAOYANG, HE HONGLIANG, LI PING, PENG HUI, Institute of Fluid Physics, CAEP, DYNAMIC DAMAGE EVOLUTION TEAM — Plate impact experiments have been carried out to examine the influence of tensile duration on dynamically induced damage evolution of OFHC. A new double-layer-sample target experimental technique, tentatively termed as damage-frozen technique, is presented in this paper, with which the tensile duration can be controlled. The experimental configuration used in this work permits real-time (VISAR) measurements of the second sample free surface velocity histories and post experiment metallurgical analysis of the soft recovered samples. It is shown that for the same dynamic loading profile but different tensile duration, the free surface velocity profiles are nearly the same, with only differences in the slope between the pull-back minima and spall peak, but pre-spall damage including number, size and distribution of the void are significantly different. Based on these results, the relationship between wave profiles and damage evolution with different tensile duration time is established.

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