

Abstract Submitted
for the SHOCK17 Meeting of
The American Physical Society

High amplitude pulses in a periodic composite with Al matrix and W cylindrical inclusions¹ PEDRO FRANCO NAVARRO, DAVID BENSON, VITALI NESTERENKO, Univ of California - San Diego — The nature of short and long high amplitude pulses in a periodic composite made of an Al matrix with W cylindrical inclusions is explored using numerical calculations. They were compared to the observed Korteweg-de Vries type solitary like waves, created by short high amplitude loading pulses, or quasi-steady oscillatory shock waves, generated by long high amplitude incoming pulses in Al-W laminates having the same volume content of components. The structure of the pulses in these two composites with different mesostructure was different, but in both cases the maximum strain rate on the leading front of the localized pulse or on the leading front of the oscillatory quasi-steady shock wave was determined by the nonlinearity and geometric dispersion and not by a dissipative properties of components.

¹P.F.N. wants to thank CONACYT-UCMEXUS for the funding

Vitali Nesterenko
Univ of California - San Diego

Date submitted: 02 Mar 2017

Electronic form version 1.4