Abstract Submitted for the SHOCK13 Meeting of The American Physical Society

The method to improve accuracy and informativeness of shockwave study of solids by means of electric explosion of foils IVAN SMIRNOV, YURI SUDENKOV, St. Petersburg State University — The experimental technique using the phenomenon of electric explosion of foils for generation of shock waves in solids will be presented. The developed setup allows to carry out the study of deformation and fracture processes in materials under high-speed loading with the pulse duration of 0.5-1 μ s and pressures up to 20 GPa. As well as for any methods of impact loading, the traditional technique of application of electrical explosion of foils does not allow to register exact parameters of loading pulse. However the use of symmetry of the foil explosion makes it possible to register with sufficient accuracy both the initial parameters of the shock wave, and the shock wave output to the sample free surface. The results of application of such technique in studies of elastic-plastic processes and spall strength of metals will be shown.

> Ivan Smirnov St. Petersburg State University

Date submitted: 20 Feb 2013

Electronic form version 1.4