Abstract Submitted
for the SHOCK09 Meeting of
The American Physical Society

Electrical conductivity of aluminum hydride AlH3 at high pressure and temperature DENIS SHAKHRAY, ALEXANDER MOLODETS, IPCP RAS, VLADIMIR FORTOV, ALEKSEI KHRAPAK, IHED RAS — A study of electrophysical and thermodynamic properties of alane AlH_3 under multi shock compression has been carried out. The increase in specific electroconductivity of alane at shock compression up to pressure 100 GPa have been measured. High pressures and temperatures were obtained with explosive device, which accelerates the stainless impactor up to 3 km/sec. The impact shock is split into a shock wave reverberating in alane between two stiff metal anvils. The conductivity of shocked alane increases in the range up to 60-75 GPa and is about 30 1/Ohm*cm. In this region the semiconductor regime is true for shocked alane. The conductivity of alane achieves approximately 500 1/Ohm*cm at 80-90 GPa. In this region conductivity is interpreted in frames of the conception of the "dielectric catastrophe", taking into consideration significant difference between electronic states of isolated AlH_3 molecule and condensed alane.

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Date submitted: 20 Feb 2009 Electronic form version 1.4