

Abstract Submitted
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Alkali metals conductivity at multistep dynamic compression

VICTOR I. POSTNOV, DENIS V. SHAKHRAY, VLADIMIR E. FORTOV, Institute of Chemical Physics, Moscow — This work is devoted to studying of phase and structural transitions, in alkaline metals (lithium, sodium, potassium and calcium) at dynamic compression. Experiments were carried out at a room temperature and at temperature of liquid nitrogen with application of smooth shock wave technique. As a result for calcium almost tenfold increase in electrical resistance was observed at the maximal pressure 60GPa. Similar electrical resistance changing was fixed in sodium experiments. In experiments with lithium the range of pressure has been expanded up to 210GPa. The break on pressure-resistivity dependence at 160Gpa was found [1]. The fixed electrical resistance changing of samples at 120GPa makes about 70 times. Character of pressure-resistivity dependence for potassium samples qualitatively coincides with fixed for sodium and lithium. In unloading electrical resistance of all samples came back to the initial value. This phenomenon testified about convertibility of occurring processes. This work was supported by RFBR N03-02-16322, grant of the President of Russia N NS 1938.2003.2, program of basic researches of the Russian Academy of Science “Thermophysics and mechanics of intensive energy influences” and Russian Science Support Foundation. 1. V E Fortov, V V Yakushev, K I Kagan et al // J.Phys.: Condens Matter 14 (2002) 10809-10816

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