

# ELECTRICAL RESISTIVITY MEASUREMENTS OF ION DRIVEN HIGH ENERGY DENSITY MATTER\*

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The high intensity heavy ion beams provided by the accelerator facilities of the Gesellschaft für Schwerionenforschung (GSI) Darmstadt are an excellent tool to produce large volumes of high energy density (HED) matter. The thermophysical properties of such systems are of interest for fundamental as well as for applied research. The development of a new diagnostic technique allowed for first measurements of the electrical conductivity of heavy ion driven HED matter. The targets consisted of 10 mm long, 0.25 mm diameter, lead, copper or silver wires. Oxygen and argon ion beam pulses with a duration of 1  $\mu$ s, intensities up to  $6 \cdot 10^{10}$  particles and energies of 200 and 300 AMeV, respectively have been used as drivers. High energy density deposition (up to 1 kJ/g) has been achieved by focussing the ion beams with a high current plasma lens down to a diameter of 0.7 – 1.0 mm FWHM. The measurements are compared with results obtained by 2D simulations of the hydrodynamic response of the target material and electrical current flow calculations.

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