

## Isentropic Compression Experiments through Magnetic Flux Cumulation

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The Explosive Magnetic Flux Implosion Generator (EMFIG) is a kind of high energy density dynamic technique and would realize isentropic compression on materials through magnetic flux cumulation. The Institute of Fluid Physics, Chinese Academy of Engineering Physics (IFP, CAEP) have developed EIMFG technique in recent years and a set-up of CJS-100 has been built up. The experiments shown that the liner implosion instabilities could be effectively depressed and CJS-100 could work stably as a tool of isentropic compression. The maximum magnetic field of 600-700T and isentropic compression of 100-200 GPa were verified. [1]

A method of equation of state (EOS) of material experiment by CJS-100 has been proposed and one dimension MHD code MC11D has been developed. The experiments on iron and copper have been carried out

and the results were compared with numerical simulation. Besides, a dynamic electric conductivity measurement system has been built up and primary experiment of isentropic compression of water has been successfully carried out. In experiment, clear signals of phase transition of water were obtained and dynamic conductivity data has been obtained.

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- [1] Zhongyu ZHOU, Zhuowei GU\*, Hao LUO, Yanjin TONG, Xiaosong TANG, Fuli TAN, Jianheng ZHAO, Chengwei SUN. IEEE TRANSACTION ON PLASMA SCIENCE, Vol. 46, Number 10, 2018, 3279.