Abstract Submitted
for the GEC10 Meeting of
The American Physical Society

Shadowgraph Visualizations of Pulsed Discharge Phenomena in Pressurized Carbon Dioxide up to Supercritical Conditions[1]
TSUYOSHI KIYAN, TAKESHI IHARA, SUNAO KATSUKI, TAKASHI SAKUGAWA, MASANORI HARA, HIDENORI AKIYAMA, Kumamoto University — In this study, pulsed discharge phenomena under high-pressure carbon dioxide including supercritical phase were visualized by means of shadowgraph method. A series of experiments is conducted by varying pressure from 0.1 to 15 MPa at the desired temperatures of 313, 308 and 298 K. The sequence of pulsed discharge plasma is observed by ICCD camera with Ar laser system. The observations show as follows: pre-breakdown phenomena with streamer; breakdown process and shock wave; collapse process and the observation of Rayleigh-Taylor instability.

[1]This work was supported financially in part by the Global COE Program on Pulsed Power Engineering of the Japans Ministry of Education, Culture, Sports, Science and Technology (MEXT).

Tsuyoshi Kiyan
Kumamoto University

Date submitted: 13 Jun 2010 Electronic form version 1.4