Abstract Submitted
for the GEC09 Meeting of
The American Physical Society

**A study on the ignition characteristics of inductively coupled electrode-less lamp** TADAO UETSUKI, MASAO FUJITA, Tsuyama National college of Technology, MOTOHIRO SAIMI, HIDENORI KAKEHASHI, Panasonic Electric Works Ltd. — Almost twenty years have passed since the first electrode-less lamp operated at 13.56MHz was put on the market. Since then, it has come to be expected that the lumen output and the efficiency of these lamp systems would be improved. The present electrode-less lamp system operated at 135kHz has higher efficiency and output than the high pressure mercury lamp system which is very popular in the market. However, the ignition mechanism of the electrode-less lamp has not yet been completely worked out. To grasp the ignition voltage and time is very important for designing this lamp system, because these influence the cost of the system. The authors investigated how to reduce the ignition time. With regard to the ignition for magnetic coupled electrode-less lamp, it was reported that there are theoretically two types of ignition, E-discharge and H-discharge. However, the definition of the ignition actually is regarded as the time when the H-discharge occurs. The authors observed the starting state of the electrode-less lamp and found that the performance of the circuit influenced the transition from E- discharge to H-discharge. The large current is necessary for the smooth transition from E- discharge to H- discharge right after the E- discharge occurs.

Tadao Uetsuki
Tsuyama National college of Technology

Date submitted: 08 Jun 2009 Electronic form version 1.4