

Experimental Discharge Characterization of IEC Plasma Device

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In this paper, Egyptian first inertial electrostatic confinement fusion (IECF) device, constructed at the Egyptian Atomic Energy Authority (EAEA-IEC), is introduced the characterization of IEC Plasma Device. It consists of 2.8 cm stainless steel cathode, 6.5 cm anode diameter with 10 cm diameter 30 cm height vacuum chamber. The discharge current and voltage of plasma discharge has been recorded using current probe and resistive voltage divider respectively. The X-ray emissions in IEC plasma device were investigated by employing time-resolved detector. The temporal distributions of detected x-rays emission are occurring during the initial 1 microsecond. The calculated rate of DD-neutron generation using the same electrode configuration about 10^6 – 10^8 neutrons/second.

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