

Comprehensive Study of X-Ray Emission by APF Plasma Focus Device

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Abstract : The time-resolved studies of soft and hard X-ray were carried out over a wide range of argon pressures by employing an array of eight filtered photo PIN diodes and a scintillation detector, simultaneously. In 50% of the discharges, the soft X-ray is seen to be emitted in short multiple pulses corresponding to different compression, whereas it is a single pulse for hard X-rays corresponding to only the first strong compression. It should be stated that multiple compressions dominantly occur at low pressures and high pressures are mostly in the single compression regime. In 43% of the discharges, at all pressures except for optimum pressure, the first period is characterized by two or more sharp peaks. The X-ray signal intensity during the second and subsequent compressions is much smaller than the first compression.

Keywords : plasma focus device, SXR, HXR, Pin-diode, argon plasma

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