

Abstract

An experimental plasma focus device with kilojoules energy able to produce a promising x-ray for radiography purposes. A series of testing with a radiography films shows a different penetration correspond with a different energy of capacitor discharge and various argon gas pressure.

Introduction

The UNU/ICTP PFF (The United Nation University/International Center for Theoretical Physics Plasma Focus Facility) Plasma Focus Mather type in Nuclear Malaysia which is originate from University Malaya fruitfully produced a focused plasma with argon gas as the filler gas.

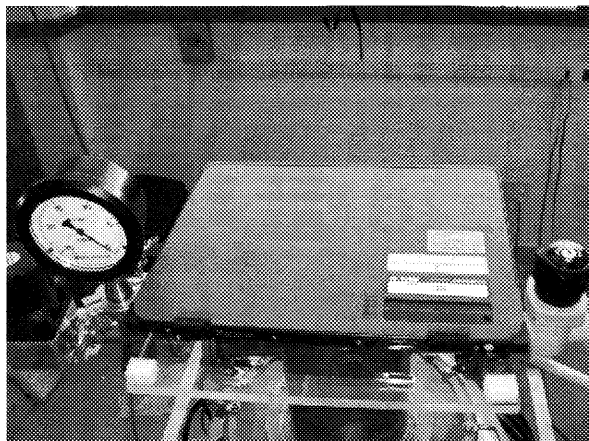
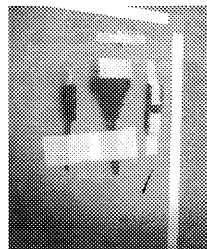
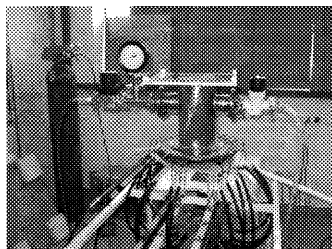
There are two types of DPF: Mather and Filippov types. Both were developed in 1960s independently by Joseph Mather and Nikolai V. Filippov respectively.

When Argon is used as the filler gas, x-ray would be produced.

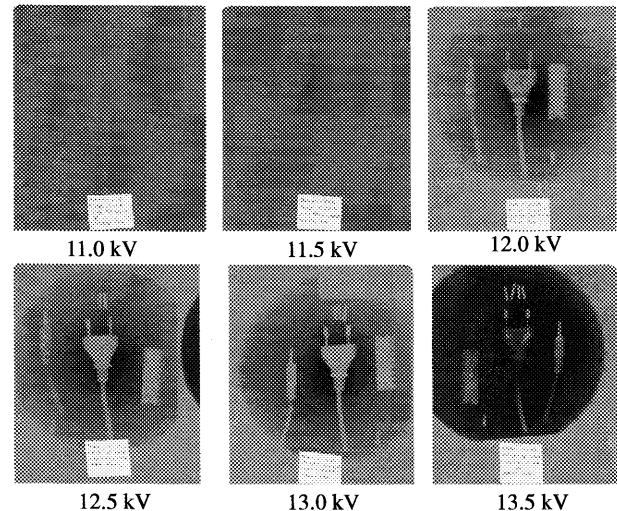
Objective

Plasma Focus as an alternative source of x-ray.

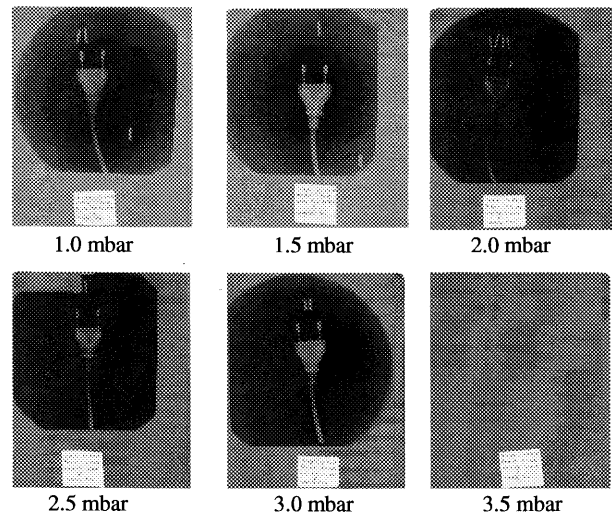
Methodology



Result



X-ray images at fixed Argon gas pressure of 1.5 mbar with various charged capacitor voltages.



X-ray images at fixed 13.5 kV charged capacitor with various Argon gas pressures.

Conclusion

Possibility studies of radiography application of the x-ray radiation produced by a Plasma Focus Device were presented. A technique to detect the x-ray radiation was very simple and inexpensive, i.e. using an x-ray film.

An advantage of producing the x-ray using plasma focus is that since the shooting period is very short (nanosecond) then the risk of over exposed to the operator would be minimized.

Further characterization of this gadget will be made in order to use it for x-ray radiography.

