

Abstract Submitted
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Multiple pinch formation in a kilojoule plasma focus device and its relation with x-ray and ion emission.¹ JALAJ JAIN, JOSE MORENO, BISWAJIT BORA, SERGIO DAVIS, CRISTIAN PAVEZ, GONZALO AVARIA, LEOPOLDO SOTO, Chilean Nuclear Energy Commission — Multiple pinching actions are observed as a consequence of gradually increasing the working pressure in a kilojoule plasma focus device, PF-2kJ. The signatures of pinching action are observed in the voltage and current derivative signals. A sharp fall in the current derivative near to the maximum current (usually known as dip) and a sharp rise in the voltage signals are considered the evidence of pinching action in plasma focus devices. In the present work, at 4 mbar only one pinch is observed near to the maximum current, and at pressures higher than 9 mbar multiple pinches are observed. A sharp rise in the current derivative is observed near to the minimum current at higher pressures that suggest a pinching action near to the minimum current. Low energy x-rays that are detected using BPX65 PIN diodes appear at the time of the multiple pinches. Ion emission that is detected using a Faraday cup, shows two peaks and does not correlate with the pinch that is observed near to the minimum current. It was found that the same physical phenomenon is responsible for both pinches that have opposite appearances.

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Jalaj Jain
Chilean Nuclear Energy Commission

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