Temporal variation of the current sheet inductance from PACO plasma focus device

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Abstract
The temporal variation of the current sheet (CS) inductance in a plasma focus device can be calculated using the current derivative and the voltage signal acquired on the anode electrode [1], which are very common measurements in this type of device. The value of that inductance contains important information about the discharge performed including the CS lift-off from the insulator [2], voltage between the pinch extremes [3], maximum energy of the x-ray [4], energy delivered to the pinch [5] and information about the actuating fusion mechanisms if the filling pressure is Deuterium [5].

This work discusses the values of the CS inductance extracted from several discharges of the PACO plasma focus, installed in the National University of the Center of Buenos Aires – Argentina (2KJ total energy, capacitor bank of 4μF charged to 31kV and a maximum current of 250kA).

Bibliography