

## **ABSTRACT**

Calculation of Plasma internal inductance ( $l_i$ ), which is essential in Tokamak plasma research. Much more plasma parameters such as the plasma current density profile, magnetohydrodynamics instability, and plasma energy confinement time can be determined by using this parameter. Discrete poloidal magnetic probes along with the diamagnetic loop can be utilized in measurement of the Plasma internal inductance ( $l_i$ ). In this paper Plasma internal inductance ( $l_i$ ) is studied by theoretical and experimental approach for HT-7 Tokamak plasmas. The results of two methods are in good agreement with each other.