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Measuring and analyzing the magnetic field in (SERAJ system) theta pinch device using the Magnetic probes HAMIDA ESHRAEE, EHSAN ELSHUMMAKHI, Al-Fateh University, Tripoli-Libya, Plasma Research Laboratory — Using the internal and the external magnetic probes in different positions inside and outside plasma discharge chamber of Seraj's Theta-pinch system ($L = 150\text{cm}$, $D = 8.4\text{cm}$), the generated magnetic field on the coil of Seraj's system has been calculated. When the plasma is discharged (by discharging the four capacitors bank connected on parallel, the capacity of each is ($12.5\mu\text{F}$) in the system coil (12nH)) the characteristics of plasma can be defined as how much magnetic field is affected. Comparing the magnetic field in the absence or presence of plasma, trapped magnetic field and Diamagnetic effect could be determined in the Theta pinch system. In the present study, one could determine the appropriate operating circumstances to produce suitable plasma with specific features (density & electron temperature) as an advantage for different application.

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