

## **CHARACTERISTICS OF ULTRA LOW FREQUENCY PLASMA (ULFP) PRODUCING CATHODE ETCHING PROCESS**

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### **Abstract**

The general properties of the produced ultra low frequency plasma (ULFP) at one Kilo Hertz, using an RF source and a mesh cathode producing cathode etching process, such as electron temperature, ion temperature, plasma density, ion velocity distribution function, and electron energy distribution function have been investigated using different techniques (e.g. single probe, double probe, Faraday Cup) are studied. In Capacitive Coupled Plasma (CCP), the plasma parameters were controlled by setting a grid (mesh) and investigate plasma parameter variations as a function of a mixing ratio in Ar/O<sub>2</sub> plasma in region over the mesh. In order to measure the localized plasma parameters; Langmuir probes (single and double) were used. Plasma parameters in the discharge region over the mesh, such as the electron temperature, electron density, and the electron energy distribution (EEDF) have been determined. The electron density increased by increasing the gas pressure while the electron temperature was decreased. The characteristics of the etched sample (e.g. width, depth, etching rate) have been also investigated.

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