

CURRENT VOLTAGE CHARACTERISTIC OF PLANAR LANGMUIR PROBE IN IONOSPHERIC MAXWELLIAN PLASMA

Shankar Bhattarai,¹

¹MSc Physics, Department of Physics, Patan Multiple Campus, Tribhuvan University, Kathmandu, Nepal

ABSTRACT

Planar Langmuir Probes have been installed on satellites and sounding rockets to observe the general characteristics of thermal plasma in the ionosphere for more than five decades. Because of its simplicity and convenience, the Langmuir probe is one of the most frequently installed scientific instruments on spacecraft. The Langmuir Probe is the key plasma diagnostic used by scientists interested in plasma characterization to measure the internal parameters of the bulk of the plasma. This research explores the theoretical study of Planar Langmuir Probe *I-V* Characteristics. The relationship between first derivatives of current versus applied probe voltage is also computed. With the help of the (volt–ampere curves) of Planar Langmuir probes, the different parameters of plasma can be determined such as plasma potential, floating potential, probe currents in different probe voltage and so on. Planar Langmuir probe geometry is easy to construct and equally suitable for plasma characterization.

Key Words: Planar Probe, Plasma Parameters, I-V Characteristic, Maxwellian Plasma