

## Abstract

A continuous energy loss measurements of  $^{63}\text{Cu}$ ,  $^{28}\text{Si}$ ,  $^{27}\text{Al}$ ,  $^{24}\text{Mg}$ ,  $^{19}\text{F}$ ,  $^{16}\text{O}$  and  $^{12}\text{C}$  ions over an energy range of (0.06-0.65) MeV/nucleon through thin polymeric foils (Mylar, Polypropylene and Formvar) were carried out by time of flight spectrometry. The deduced experimental stopping data have been used in order to assess our proposed semi empirical formula. The proposed approach based on the Firsov and Lindhard-Scharff stopping power models is provided for well describing-the electronic stopping power of heavy ions ( $3 \leq Z < 100$ ) in various solids targets at low energy range. The  $\zeta^e$  factor, which was approximated to be  $\sim Z^{11/6}$ , involved in Lindhard, Scharff and Schiott (LSS) formula has been suitably modified in the light of the available experimental stopping power data. The calculated stopping power values after incorporating, effective charge  $Z_1'$  of moving heavy ions with low velocities ( $v \leq v^0 Z^{12/3}$ ) and modified  $\zeta^e$  in LSS formula, have been found to be in close agreement with measured values in various solids targets. A reason of energy loss measurements is to obtain data that help to assess our understanding of the stopping power theories. For this, the obtained results are compared with, LSS calculations, MSTAR and SRIM-2013 predictions code