

ABSTRACT

Source of Negative Ions using Cesium Sputtering (SNICS) associated with the 6SDH-2 2MV Pelletron accelerator installed at GC University is optimized. The accelerator is high-tech research equipment and is currently only one of the two such machines installed in the country. The machine is used to accelerate ions through a very high potential. The ions can be used for research purposes related to material modification, elemental analysis etc. The generation of ions is the foremost step in the whole process. SNICS can be used to generate a wide variety of ions from the whole periodic table. Ions are generated through a complex process involving different high voltage power supplies and temperature settings. Numerous experiments were carried out to maximize the current at the source output. Hydrogen, silicon, copper and gold cathodes were used and the results have been plotted and summarized in the form of tables. The report also outlines the process of cathode preparation for this source.