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CHARGE ACCUMULATION ON METAL STRIP-DETECTOR SENSORS UNDER ION BEAM IRRADIATION: EXPERIMENT AND MODELING

This paper presents the Monte-Carlo simulation of charged particles motion in aluminum film of several tens micrometers thickness, which is a sensor part of a strip-detector. It was considered that secondary electrons are generated by copper ions Cu^{++} with energy 5 - 25 keV. An elastic collisions with target atoms, atomic levels ionization and electron capture have been taken into account for the ions, and for the secondary electrons – elastic collisions with target atoms, atomic levels ionization, plasmons and phonons generation. The derived dependence of the charge accumulated by sensor on ion beam energy is matching experimental data.

Keywords: ion beams, thin films, secondary electron emission, metal strip-detector, modeling.