DEVELOPMENT AND CHARACTERISTICS OF SILICON COORDINATE-SENSITIVE DETECTORS FOR HIGH ENERGY PHYSICS AND NUCLEAR PHYSICS

V. L. Perevertaylo

Developments of various silicon coordinate-sensitive detectors of particles and radiations for experiments in high energy physics and nuclear physics which are carried out by HERA-B, LHCb, ALICE collaborations and scientific establishments in Europe and Ukraine are presented. Detectors were designed with the help of custom software designed on the integrated circuits and manufactured at technological lines for commercial silicon IC that allow mass production. At realization of these works a number of technologies of silicon detectors production for various purpose and techniques of measurement of their electrophysical parameters were developed. Tests and studies of coordinate-sensitive detectors were carried out. It has been shown that they are providing reliable registration of useful events (a signal/noise ratio not less than 20 for non-irradiated samples) and high spatial resolution (for geometry of designs presented typical value - tens microns), also at the radiation load of few megarad and higher.