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The charge losses in SiC and Si detectors at the registration of heavy ions

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The results of measurements of charge losses at detection of heavy xenon ions with detectors based on boron carbide (SiC) and silicon (Si) are presented. It is shown that the measured values of charge losses (amplitude defect) from the true energy of Xe ions for Si and SiC detectors are 20 and 40%, respectively. These results are due to the significantly shorter lifetime of charge carriers created by the particle in SiC compared to silicon. When using SiC detectors, this leads to a significantly greater recombination of electron-hole pairs in the region of the so-called “plasma filament”, which is formed in the ion track.

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