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New technique of thin silicon epitaxial detectors and application of it to nuclear physics and heavy ions

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Since thickness of silicon detectors made planar technology is limited to about 300 μm we have elaborated the new technology of thin detectors named “Low-temperature technique of thin silicon ion implanted epitaxial detectors”. In this technique the photolithography, ion implantation and high-temperature annealing of planar technology is replaced by application mechanical mask followed by ion implantation, Al evaporation and long-time, low-temperature baking of prepared silicon detectors in the environmental atmosphere (A. J. Kordyasz *et al.*, *Eur. Phys. J.* **A51** (2015) 15). Using this technique the 5 μm thick strip epitaxial detectors have been produced (A. J. Kordyasz *et al.*, *Acta Phys. Pol.* **B47** (2016) 207). The detector strip widths of about 10 μm on 5 μm thick silicon epitaxial layer were achieved (A. J. Kordyasz *et al.*, *HIL Annual Report 2016*, page 77). In the proposed talk the “Low-temperature technique of thin silicon ion implanted epitaxial detectors” will be presented and new results of measurements will be shown. Future application to nuclear physics and heavy ions will be discussed.

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