

Participation on development of radiation hard particle detectors for the ATLAS experiment was main goal of this bachelor thesis. Collaboration on the detector development requires understanding of principles of particle detection in HEP experiments. It contains topics of radiation interaction with matter, operation and construction of semiconductor detectors and signal processing. Special attention was paid to radiation damage of silicon detectors.

Laser test of irradiated detectors, where operation at low temperature was necessary, were performed. Finally, basic electric characteristics of the detectors were obtained. I participated in preparation and realization of measurement and analysis of the results. Further, the new readout system HSIO was installed with my assistance at the detector laboratory of Institute of Particle and Nuclear Physics in Prague. It will be used in further development of particle detectors for the ATLAS experiment.