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#10-257 Visualization of ionizing radiation with MiniPIX-EDU turns boring theory into wonderful exploration

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The MiniPIX EDU is miniaturized imaging detector visualizing traces of individual particles of ionizing radiation in the normal environment such as classroom. It is simplified but still very powerful version of the MiniPIX detectors operated by NASA in space for radiation monitoring on the orbit. This CERN based technology gives very illustrative and easy to understand insight into complicated processes of particle physics. This miniature particle tracking detector can visualize even very small amounts of ionizing radiation which is present everywhere. Students can “see” the different types of radiation emitted by common materials such as piece of granite or ash, radioactivity accumulated in paper bag from vacuum cleaner or deposited on the face mask used for protection against infections. They can explore the variation of the air radioactivity during the day, hunt for cosmic muons and check their directions, see how altitude affects presence of radiation types. They can try to prepare their own (safe) radioactive source and try to construct the shielding against the radiation it emits. Students can directly observe how different radiation types interact with matter and what happens then. They can watch the laws of radioactive decay.

The MiniPIX EDU device and its utilization for educational extents experiences collected by earlier projects such as “CERN technology in schools” of Mrs. Becky Parker. About 450 schools with more than 15.000 students participated since 2007. Similar project of the Institute of Experimental and Applied Physics (IEAP) of Czech Technical University in Prague and Jablotron company resulted in the prize winning MX-10 detector device. All these projects were done in close collaboration with CERN Medipix group. The new MiniPIX EDU device is based on the same Timepix chip as MX-10 but it is much smaller, more stable and less expensive.

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