ABOUT THE EDUCATIONAL POSSIBILITIES OF COSMIC RAY SCHOOL PROJECTS

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For the experimental scientists the cosmic rays (discovered by V. Hess in 1911) have been the source of finding new particles like positron, the first anti-particle ever observed, muon and kaon. For a long time particle physics had been out of reach for science educators, but at the turn of 21st century applications and devices have been made available not only by commercial operators but also by the experimental groups through their outreach programs.

Cosmic ray school projects make use of different detector technologies (cloud chambers, scintillator detectors, Cherenkov detectors) and ever more affordable electronics and even electronic kits. The school projects can be divided into two kinds of operators, the ones who have the devices at their research facilities (e.g. EMMA [1], Rusalka [2]) and the ones who install detector setups into schools (e.g. HiSPARC [3], CZELTA [4]).

The main educational impact groups of cosmic ray school projects are the students in upper secondary schools and in higher educational institutions. Some research groups, like CUPP, do organize activities for younger ones as well.

The cosmic ray school project activities can give additional depth not only into physics education but also into variety of other subjects as well: particle physics, energy and matter interactions, math, electrical engineering, language and presentation skills, team work and programming. In the newest Finnish national educational plan for the schools the interaction between different subjects has been emphasized, especially related to project work and programming.

By taking part the schools could benefit from the already existing cosmic ray school projects and the scientific society could also benefit from the early stage interaction with the possible future scientists.

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