

Bergische Universität Wuppertal, Germany

We, ten students of the elementary-particles-project of the St.-Anna-Schule Wuppertal, met at the Bergische University Wuppertal (Germany) to measure Cosmic Rays.

The measurement was performed with 3 CosMO detectors of the “Netzwerk Teilchenwelt”, read out by the program “muonic”.

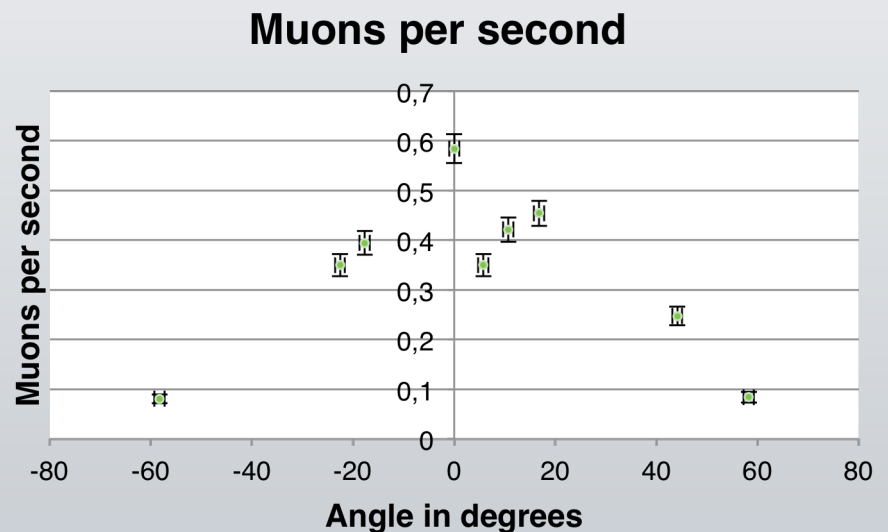
We measured with 3 detectors on a table, first standing on top of each other, then next to each other, to see, how many muons arrived per second. Afterwards we put the detectors on an aluminium frame, which we put at different zenith angles. Regarding the accuracy of the data, one has to take into account that we were measuring inside a building with 2 floors on top of us. At the positive angles the structure faced the window front, while at the negative angles it faced the wall. The measured rate was the highest, when the devices were facing the ceiling. It decreased strongly, when the devices were tilted.

A comparison of the rates at the same angles facing the opposite directions shows, that there is almost no difference.

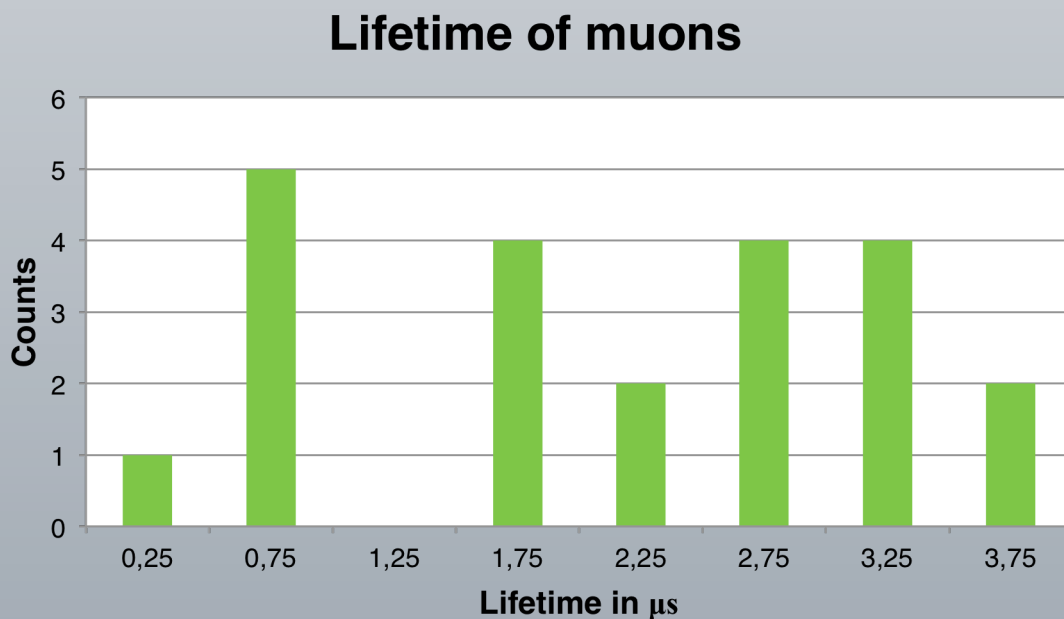
Apparently the walls didn't have a great impact on the rates.

This leads to the conclusion, that the rates are effected by the distance of their way through the atmosphere.

The results of the experiment can be seen in the following diagram:



During the experiment, explained above, we used two other sets of 3 detectors each to detect decaying muons and to measure their average lifetime. As we only ran the experiment for 2:30 hours, we received no more than 22 events. This data can be seen in this diagram:



The average measured lifetime of muons as given by the fit of the Program “muonic” is 2.14 microseconds.

