MUON LIFETIME

Problem
How long, on average, is a muon lived?

Hypothesis
We think that the muon will live for about 0.2 seconds.

Materials
1. Two Muon Detectors
2. Data Acquisition Board
3. Counter
4. Signal & High Voltage Cables
5. Low Live Voltage Power Supply
6. Zero Dead of Cubes

Procedure
1. We set up two sheets of lead evenly in between two muon detectors.
2. We determined the track that we wanted to measure from Friday, April 11 2002, to Monday, April 14, 2002.
3. We then determine how many seconds that it would be between these two measurements.
4. We took the amount of seconds that it would be between the two measurements and the amount of time that it would be on the computer.
5. On Monday we used our results in a disk for analysis in our lab.

Analysis & Conclusion
The mean lifetime was calculated to be 0.20 microseconds with a standard error of 0.05 microseconds. The obtained value for the lifetime of the muon differed slightly from the theoretical value of 2.2 microseconds.

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