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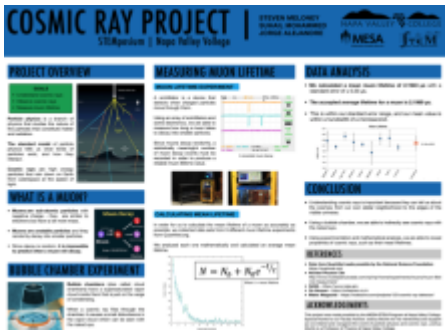
Cosmic rays are high energy particles that rain down on Earth from outer space at the speed of light. The objective of the Cosmic Ray Project was to introduce ourselves to the field of Particle Physics by constructing a cloud chamber which would allow us to observe particle tracks firsthand, and by analyzing datasets from the Cosmic Ray e-Lab to measure the lifetime of a muon. A cloud chamber has a supersaturated vapor cloud inside that is just on the verge of condensing. When a cosmic ray enters the chamber, it causes a small disturbance in the vapor cloud which can be seen with the naked eye. Muons decay into smaller particles such as the muon neutrino, the electron neutrino, and the electron. Using an array of scintillators we are able to measure the amount of time this decay takes. Muons decay randomly, so a statistically meaningful number of decays must be recorded in order to produce a reliable muon lifetime value. We calculated a mean muon lifetime of 2.1943 microseconds with a standard error of +- 0.23 microseconds. Our mean value is within a hundredth of a microsecond of the accepted average lifetime of 2.1969 microseconds. Understanding cosmic rays is important because they help us to understand more about the cosmos; from our own stellar neighborhood to the edges of the visible universe.


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