EEE - International Muon Week

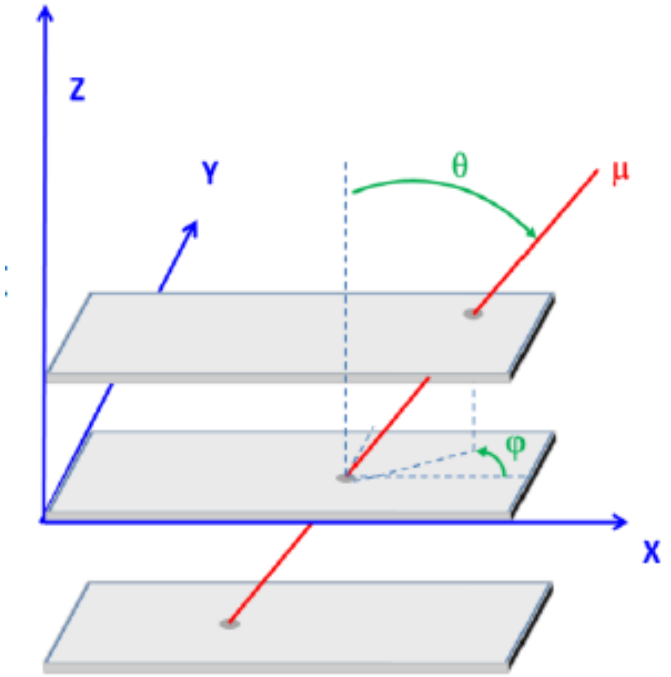
R. Nania – IPPOG May 2019

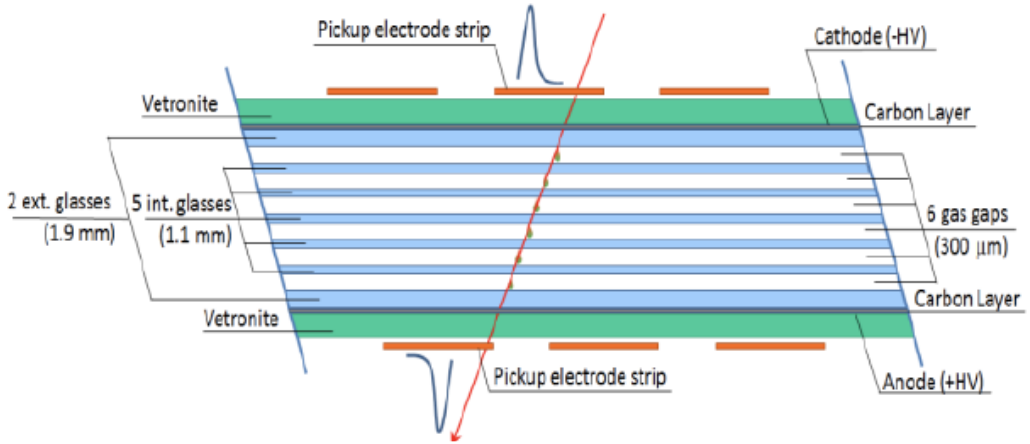
EEE - International Muon Week

13 EEE schools, about 120 students contributed to the event

- Ancona, Liceo Scientifio Galilei
- Bitetto(BA), Liceo Statale E. Amaldi
- Carcare (SV), Liceo Giuseppe Calasanzio
- Lanciano (CH), Liceo Scientifico Galilei
- Maglie (LE), Liceo Scientifico Leonardo da Vinci
- Montesilvano (PE), Liceo Scientifico "C. D'Ascanio"
- Reggio Calabria, Liceo Scientifico A. Volta
- Roma, Liceo Vittoria Colonna
- Cagliari, Liceo Scientifico Michelangelo
- Cagliari, Liceo Scientifico A. Pacinotti
- Grottaferrata (RM), Liceo Scientifico B. Touschek
- Roma, Liceo Classico P. Albertelli
- Salerno, Liceo Scientifico G. Da Procida

EEE - International Muon Week

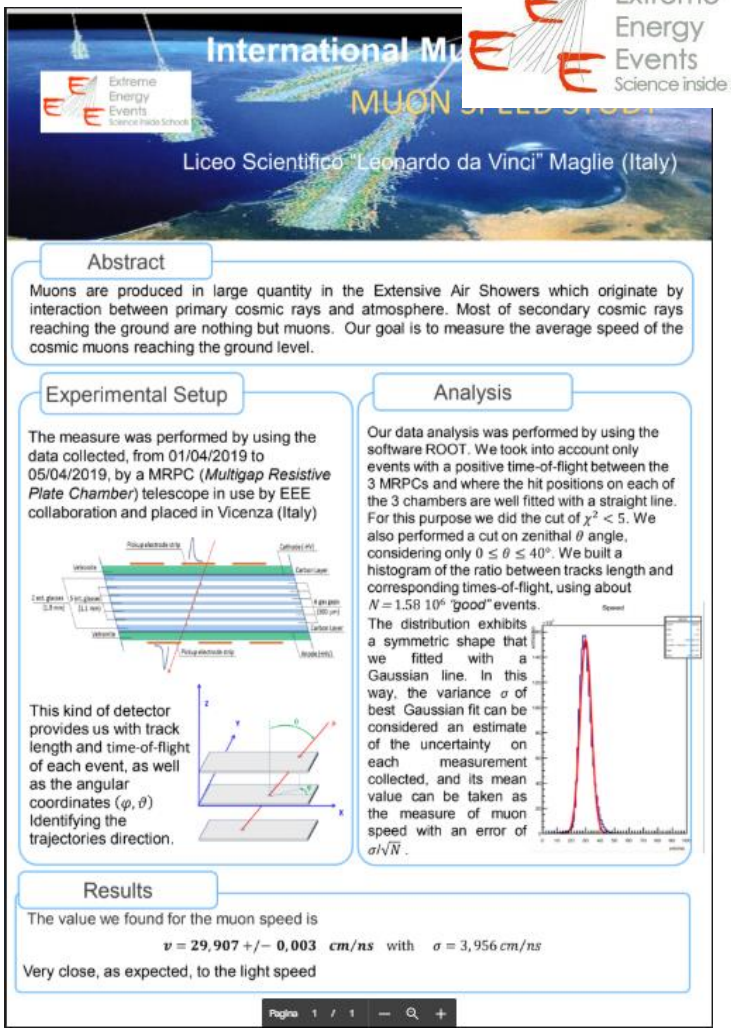




Schools took reconstructed tracks from data between 1st to 5th April 2019

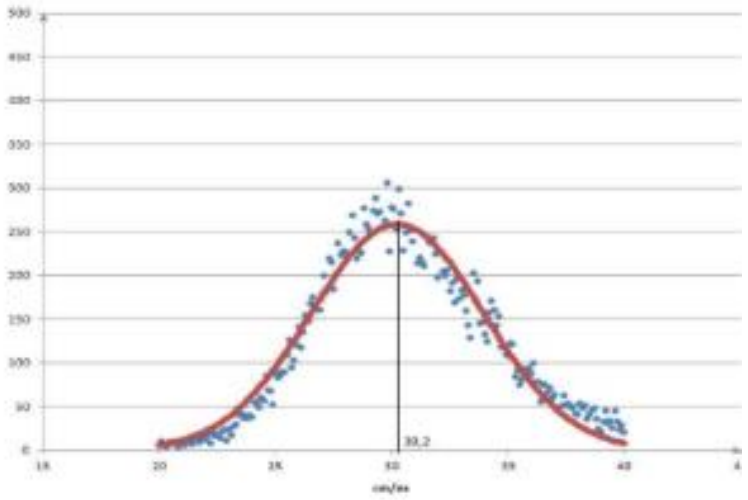
How to perform and optmize the measurement?

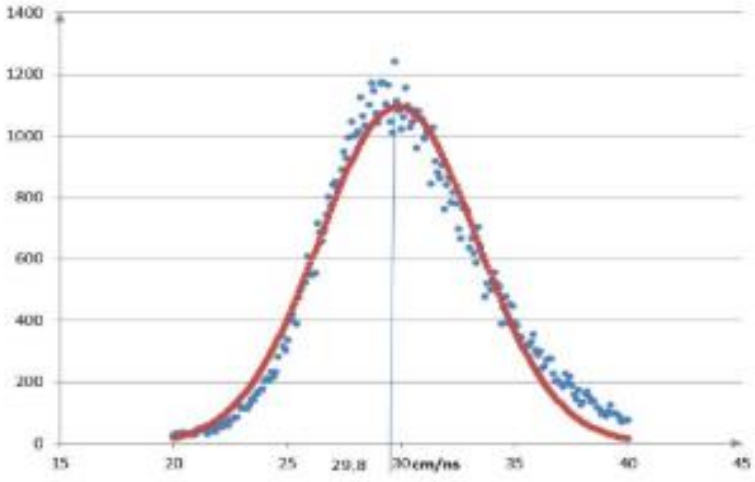
- What are the relevant variables?
- How do we get to the muon speed?
- How do we extract the final value?
- How many data points? How many stations to be included? The more the better?
- What is the precision of the measurement?
- How to optmize it?
- **Comment on the results: how the measured value compares with other fundamental quantities (*e.g.*, *c*)?**



- Different cuts have been applied to measure the cosmic muon speed through EEE telescopes (angle , χ^2 , lenght…)
- Measurements were both based on data samples from a single telescope and on combination of data from different telescopes.
- Written reports and presentations at the monthly EEE meeting were required.

3 and 4 Aprile 2019





STUDY OF MUON SPEED

Report by di Amici Lorenzo, D'Andrea Sharon, Grossi Filippo, Serenella Pietro e Mejia Padilla Paulo, Liceo Scientifico Statale "B. Touschek", Grottaferrata (RM)

Introduction :

Cosmic rays are energetic particles from outer space, to which the Earth and other celestial bodies are exposed. Their nature is varied (they have 14 different orders of magnitude) as well as their origin. Outside the atmosphere, cosmic rays consist mainly of protons and nuclei of helium, which constitute the majority, and in a small part also electrons and neutrons. All these constitute the "group [illegible] primary cosmic rays. When they arrive in the atmosphere,

International Muon Week
Observations from EEE

- Very succesful initiative
- Students are involved in a complete measurement, from data analysis (x2 cut, angle cuts, tails in distributions…) , statistical evaluation and writing a document.
- Other possible measurement on muon ? Decay, energy….
- It is missed a moment to exchange the experiences among the different schools in the world. This could also be organized few weeks after the "muon week ".
- Hope to have also in this case a final report, as for ICD.