



Trento Institute for
Fundamental Physics
and Applications



International Cosmic Rays Day

Istituto di Istruzione “A. Degasperi”, Borgo Valsugana
Istituto di Istruzione “Martino Martini”, Mezzolombardo
Liceo Scientifico “L. da Vinci”, Trento

Organizzatori:

- Francesco Dimiccoli

Partecipanti:

- Francesco Nozzoli
- Elettra V. Bellinzona
- Christian Manea

Orario: 14:00 - 19:30

Programma:

- Accoglienza
- Presentazione introduttiva sui RC
- Presa Dati (in diretta)
- Visita alla camera a nebbia
- Analisi Dati (a gruppi - su raspberry)
- Visita virtuale al POCC di AMS
- Preparazione slide
- Call con DESY



Set up

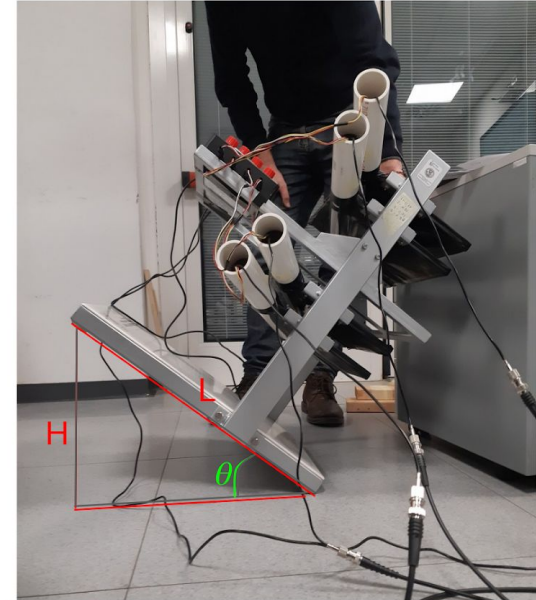
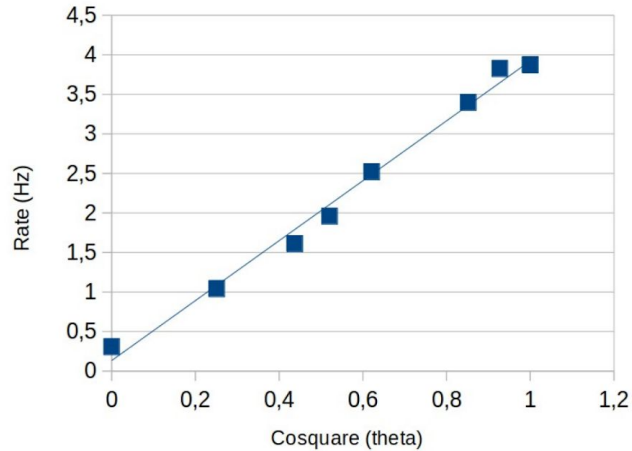


- 4 layer di scintillatore
- 15cmx15cm a 27 cm di distanza
- 4 PMT
- Supporto NON rotante
- Oscilloscopio
- Set up disponibile per i prossimi ICD



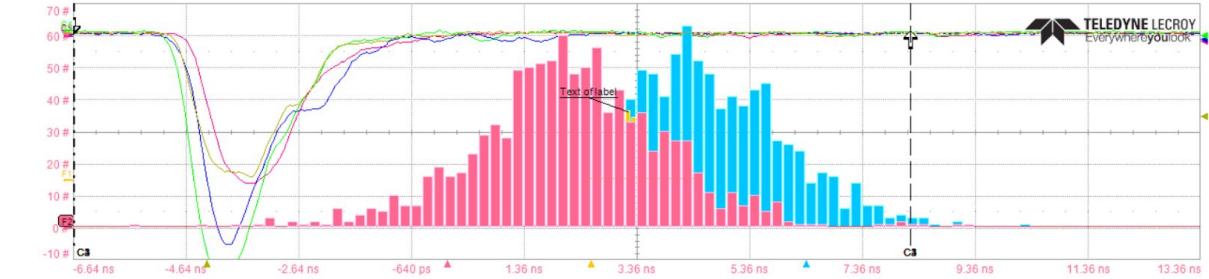
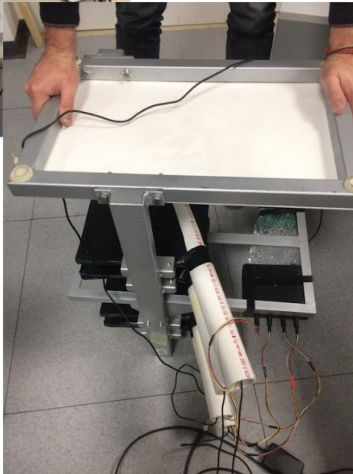
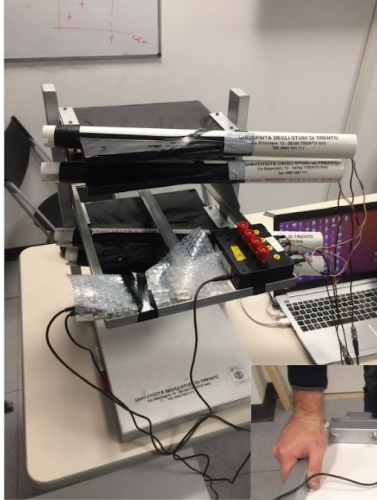
h

Angular dependence

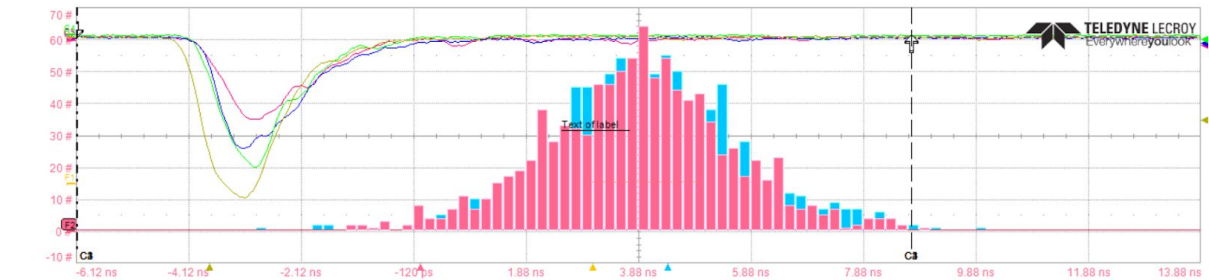


H (cm)	H/L = sen	COS	N	T(s)	CosqQ	R=N/T (Hz)	T1-T3 (ns)	T2-T4(ns)	NOTE
0	0	0	1			1	3,82	-0,372	flipped
0	0	0	1	1162	300	1	2,199	-2,065	
14	0,269230769	0,963075694		918	240	0,927514793			
20	0,384615385	0,923076923		3160	930	0,852071006			
32	0,615384615	0,788226982		605	240	0,621301775			
36	0,692307692	0,721602425		823	420	0,520710059			
39	0,75	0,661437828		290	180	0,4375			
45	0,865384615	0,501108239		250	240	0,251109467			
52	1	0	0	129	420	0			

Average muon velocity



Measure	P1:ampl(C4)	P2:ampl(F1)	P3:ampl(F1)	P4:dt@lv(C1...	P5:dt@lv(C2...	P6:---	P7:---	P8:---	P9:---	P10:---	P11:---	P12:---
value	> 1.5309 V	> 216.0 #	> 216.0 #	1.028 ns	-3.282 ns	---	---	---	---	---	---	---
mean	> 837.5 mV	> 216.0 #	> 216.0 #	2.199 ns	-2.065 ns	---	---	---	---	---	---	---
min	> 70.1 mV	> 216.0 #	> 216.0 #	-5.464 ns	-8.487 ns	---	---	---	---	---	---	---
max	> 1.5480 V	> 216.0 #	> 216.0 #	9.265 ns	3.845 ns	---	---	---	---	---	---	---
sdev	> 281.5 mV	---	---	1.751 ns	1.665 ns	---	---	---	---	---	---	---
num	1.163e+3	1	1	1.162e+3	1.160e+3	0	0	0	0	0	0	0
status	μ↓	μ↓	μ↓	✓	↓	---	---	---	---	---	---	---



Measure	P1:ampl(C4)	P2:ampl(F1)	P3:ampl(F1)	P4:dt@lv(C1...	P5:dt@lv(C2...	P6:---	P7:---	P8:---	P9:---	P10:---	P11:---	P12:---
value	830.8 mV	> 180.0 #	> 180.0 #	2.913 ns	893 ps	---	---	---	---	---	---	---
mean	> 877.8 mV	> 180.0 #	> 180.0 #	3.820 ns	-372 ps	---	---	---	---	---	---	---
min	> 87.7 mV	> 180.0 #	> 180.0 #	-1.303 ns	-7.126 ns	---	---	---	---	---	---	---
max	> 1.5469 V	> 180.0 #	> 180.0 #	8.909 ns	6.053 ns	---	---	---	---	---	---	---
sdev	> 310.8 mV	---	---	1.672 ns	1.700 ns	---	---	---	---	---	---	---
num	1.178e+3	1	1	1.178e+3	1.174e+3	0	0	0	0	0	0	0
status	μ	μ↓	μ↓	✓	✓	---	---	---	---	---	---	---

Average velocity

T3-T1(ns)	T2-T4(ns)	V1,3	V2,4	media	errore
2,199	-2,065	29,61135102	28,3520378	28,98169441	0,629656608
3,82	-0,372				

$$V=29,0 \pm 0,6 \text{ cm/ns}$$

Criticità:

- Preavviso alle scuole
- Durata troppo breve
- Analisi non approfondita
- Scarsa copertura mediatica