

Cosmic Rays Cube

Ricostruzione delle tracce

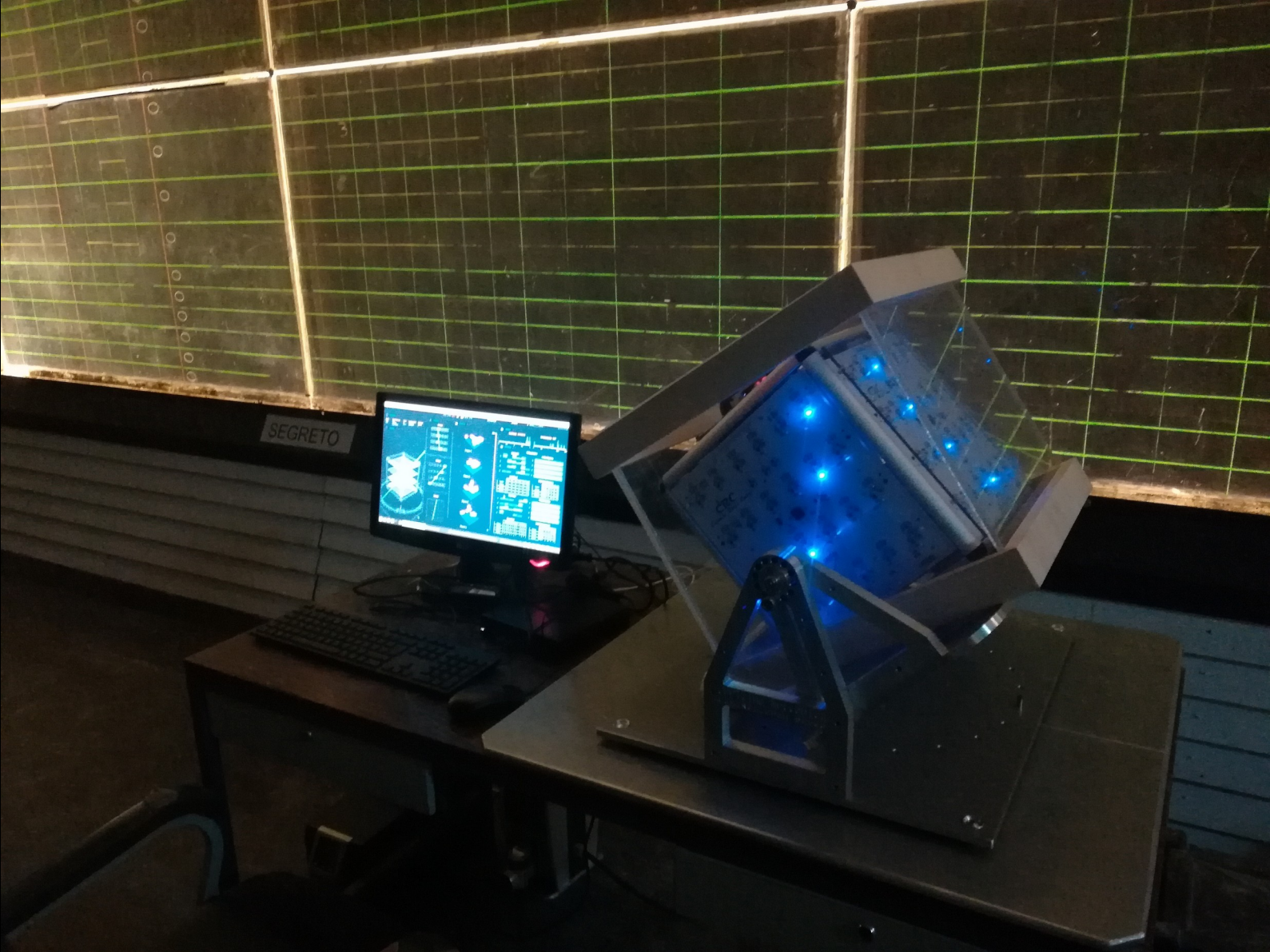
Nicola Rossi

PID 2024, LNGS 8-21 aprile

Monte Soratte (Vicino Roma)







SEGRETO





ELSEVIER

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Nuclear Inst. and Methods in Physics Research, A

journal homepage: www.elsevier.com/locate/nima



Measurement of the muon flux in the bunker of Monte Soratte with the CRC detector



A. Candela^a, A. Cocco^a, N. D'Ambrosio^a, M. De Deo^a, A. De Iulis^c, M. D'Incecco^a,
P. Garcia Abia^d, C. Gustavino^{b,*}, G. Gustavino^e, M. Messina^a, G. Paolucci^c, S. Parlati^a, N. Rossi^a

^a *Laboratori Nazionali del Gran Sasso, Assergi (AQ), Italy*

^b *Istituto Nazionale di Fisica Nucleare, Sezione di Roma, Italy*

^c *Museo Percorso della Memoria, Sant'Oreste (RM), Italy*

^d *CIEMAT, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Madrid, Spain*

^e *Homer L. Dodge Department of Physics and Astronomy, University of Oklahoma, Norman OK, USA*

ARTICLE INFO

Keywords:

Muon flux

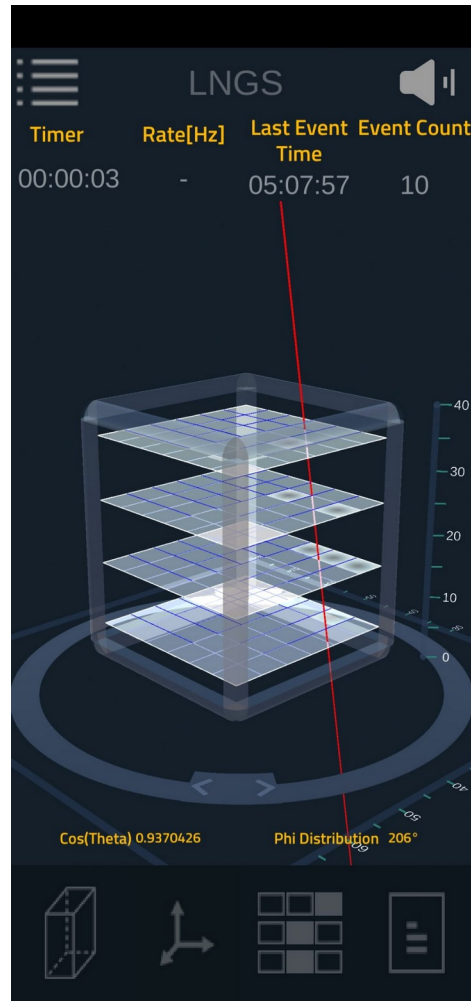
Underground laboratory

Muon tomography

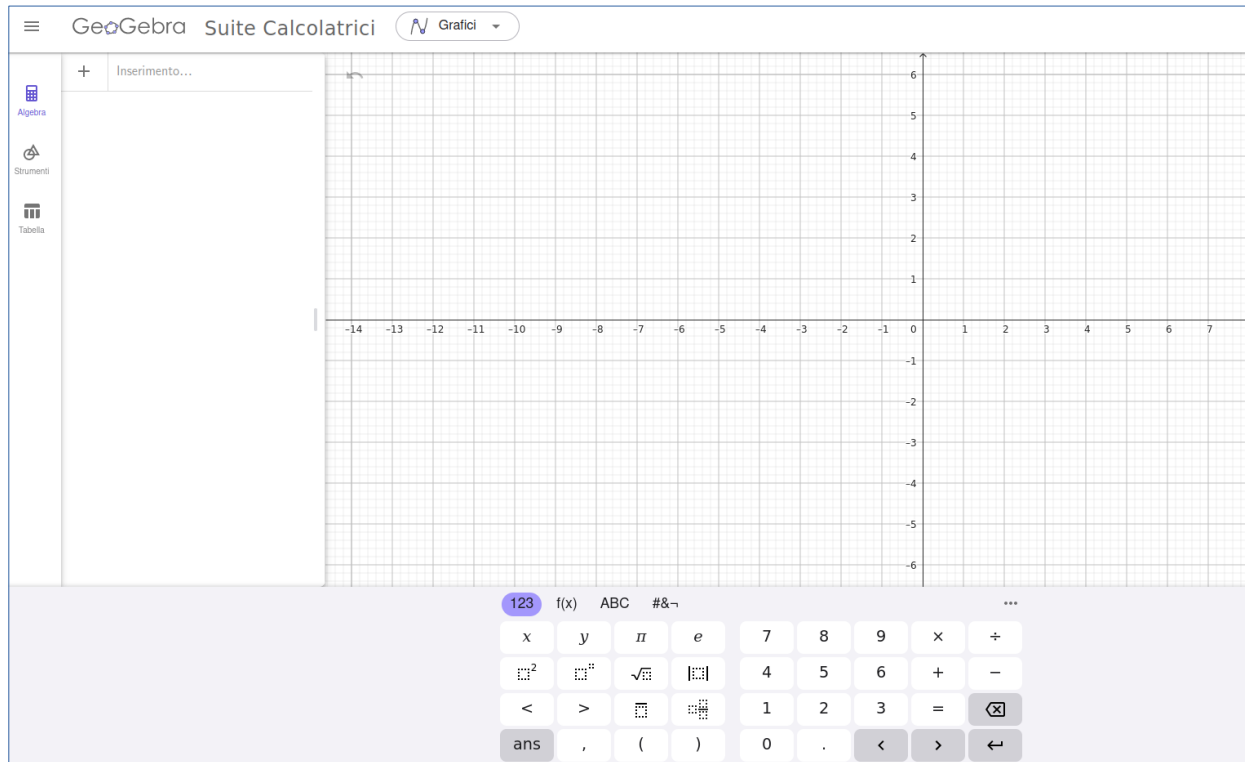
Muon radiography

ABSTRACT

In the context of the PTOLEMY project, the need for a site with a rather low cosmogenic induced background led us to measure the differential muon flux inside the bunker of Monte Soratte, located about 50 km north of Rome (Italy). The measurement was performed with the Cosmic Ray Cube (CRC), a portable tracking device. The simple operation of CRC was crucial to finalize the measurement, as it was carried out in a site devoid of scientific equipment and during the COVID-19 lockdown. The muon flux measured at the Soratte hypogeous is about two orders of magnitude lower than the flux observed on the surface, suggesting the use of the Soratte bunker for hosting astroparticle physics experiments in which a low environmental background is required.



Cosmic Rays Live



GeoGebra

