About my research 'Muography'

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Development of a lightweight muon radiography device intended for the installation of the drone.





Controlling drone, make them possible to install the detector to where it is hard to go by a human. Or observe during hover over.

What is Muography



Muon

- The cosmic ray with high penetrating power,
- Its amount decrease in proportion to the object's thickness

Muography

This is the technology that can clairvoyance of huge objects by creating muon's arrival frequency distribution.

Applicating

Archeology research



Source : http://www.hip.institute/press/HIP_INSTITUTE_CP7_EN.pdf

Overall



1 Scintillator + Fiber

Detect the muon by scintillator that luminescence to the passage of charged particles and fiber that convert light of scintillator.



The device can detect light even if the light is weak.



How to make muon's arrival frequency distribution



Detect a muon's luminescence.

By detecting reacted scintillator, you can reconfigure a straight line that passes through two points in space.

How to make muon's arrival frequency distribution



Add virtual plane and object.

Create muon's arrival frequency distribution by counting the number of muons by position.

How to make muon's arrival frequency distribution



Create two types of distribution, with objects and without objects. Create frequency **distribution of the two differences** between both.

Out line of machine



About EASIROC



EASIROC This is the detector that can read 64 MPPC's signal at once and send its information to PC.

We use this detector to record which channel reacted.

Detect which scintillator reacted by using EASIROC.



EASIROC 1 sends a signal to record which channel reacted to EASIROC 2 when the event hit the 1st and 4th layers comes.

Performance evaluation



Mizoguti Outcrop @Ina city, Nagano prefecture, Japan

How to make lighter detectors.

Change the scintillators.





Scintillator + Fiber (143g)

PSF(Plastic Scintillation Fiber) (1g)

Plastic Scintillation Fiber :

When hit radiation, this fiber luminescence the light and can convert light.

This PSF is useful to make lighter ones.

Thank you for listening