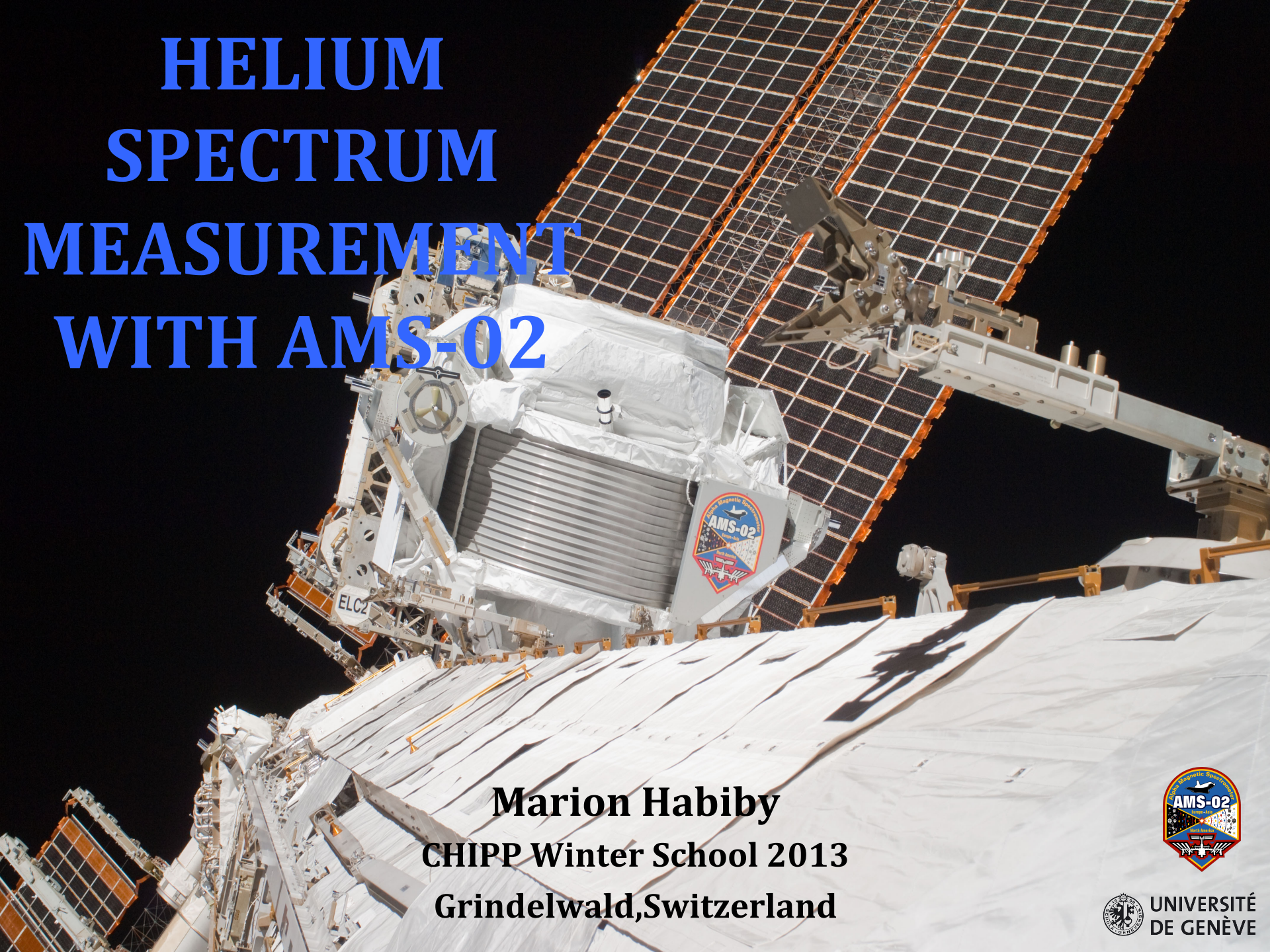
HELIUM SPECTRUM MEASUREMENT WITH AMS-02



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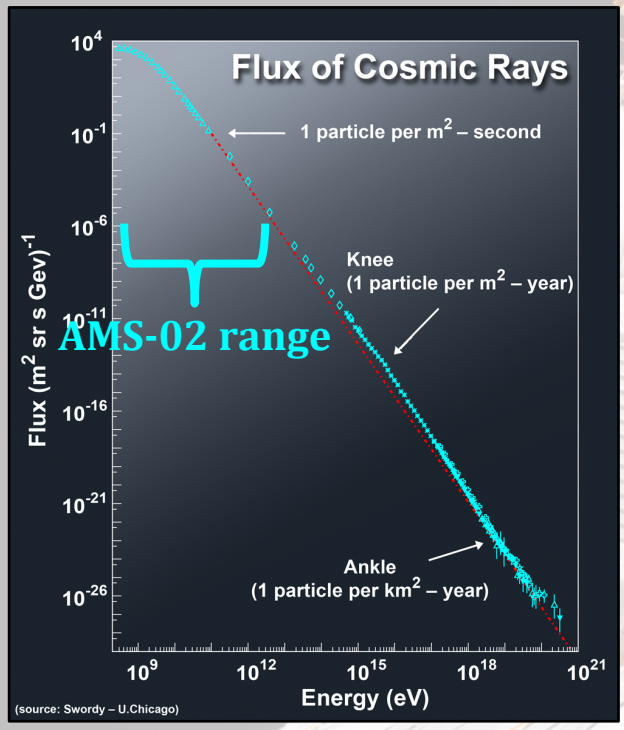
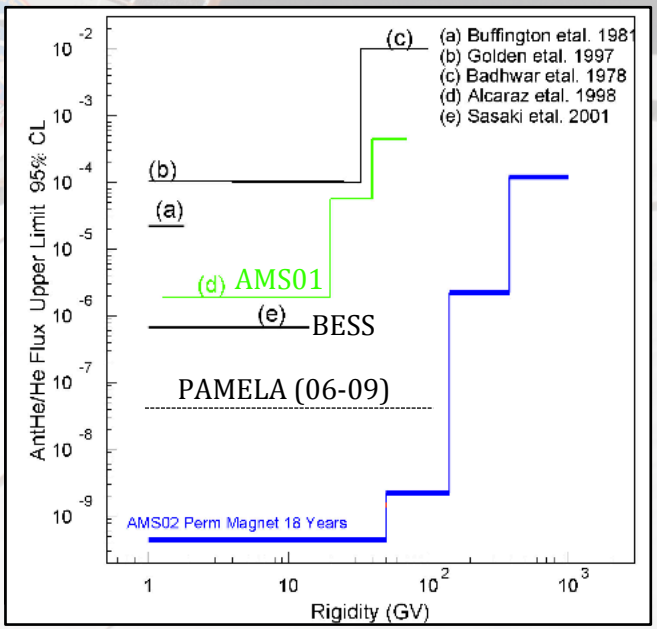
The AMS-02 experiment

Motivations for helium analysis with AMS-02



helium flux and spectral index
$dN/dE \sim E^{-\gamma}$
in the AMS-02 energy range γ is constant after few GeV

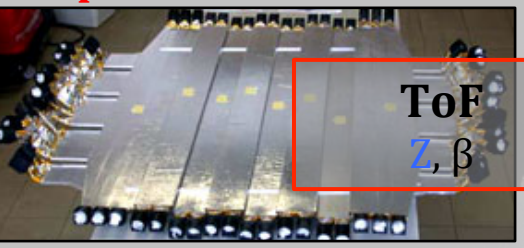
the anti-He/He ratio :
a new limit ?
anti-He ?



The AMS-02 experiment

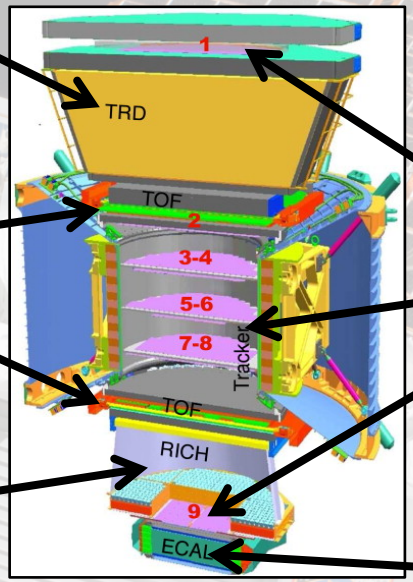
TRD
Z, e^+/e^-

Scintillating paddles

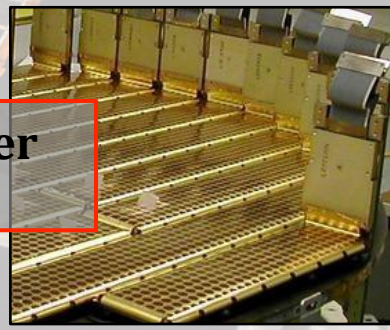


ToF
Z, β

RICH
Z, E

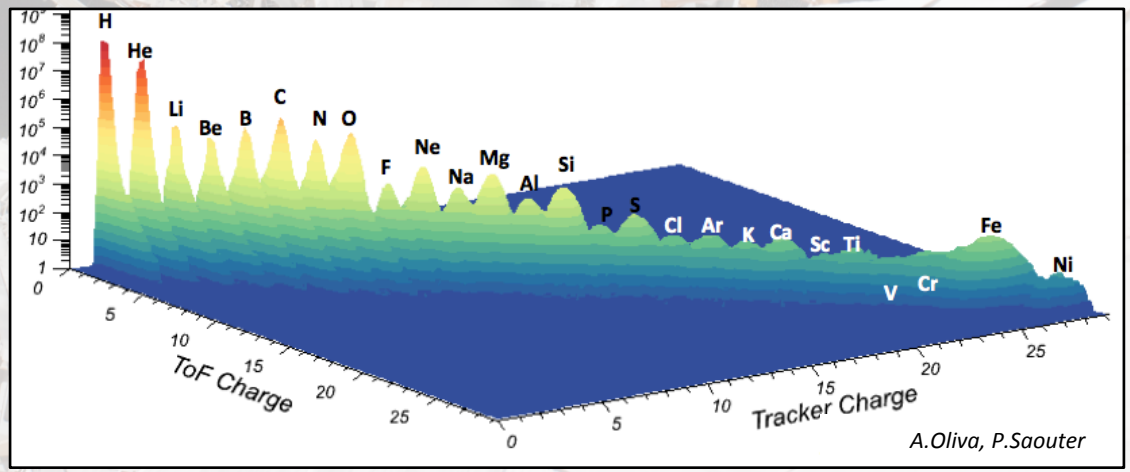


Double Sided Silicon Sensors



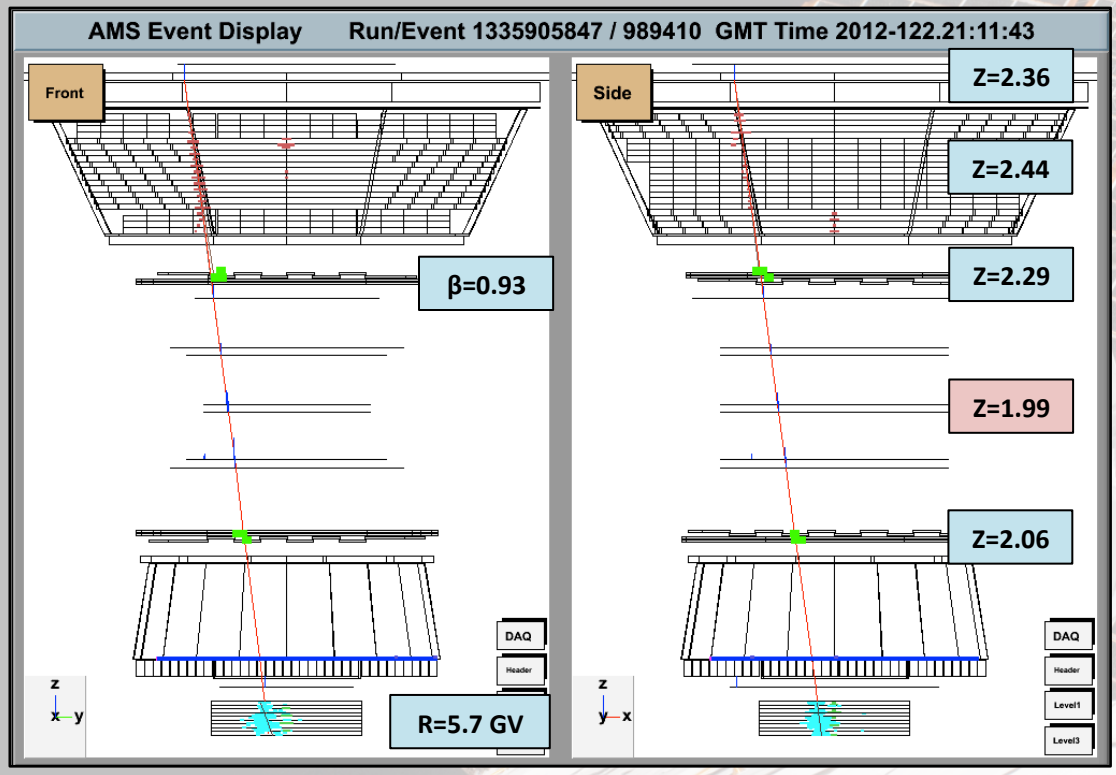
Tracker
Z, R

ECAL
E of e^+, e^-, γ

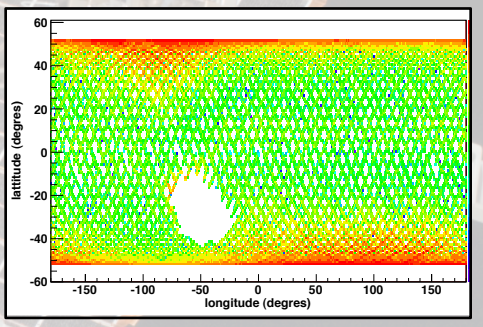


The Helium Selection

we need to select good He particle passing through AMS



➔ **we apply some pre-selection cuts on the event**



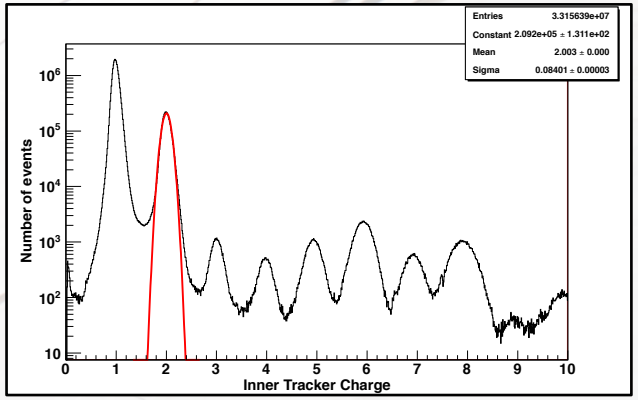
the SAA example

➔ **we apply some cuts on the quality of the track**

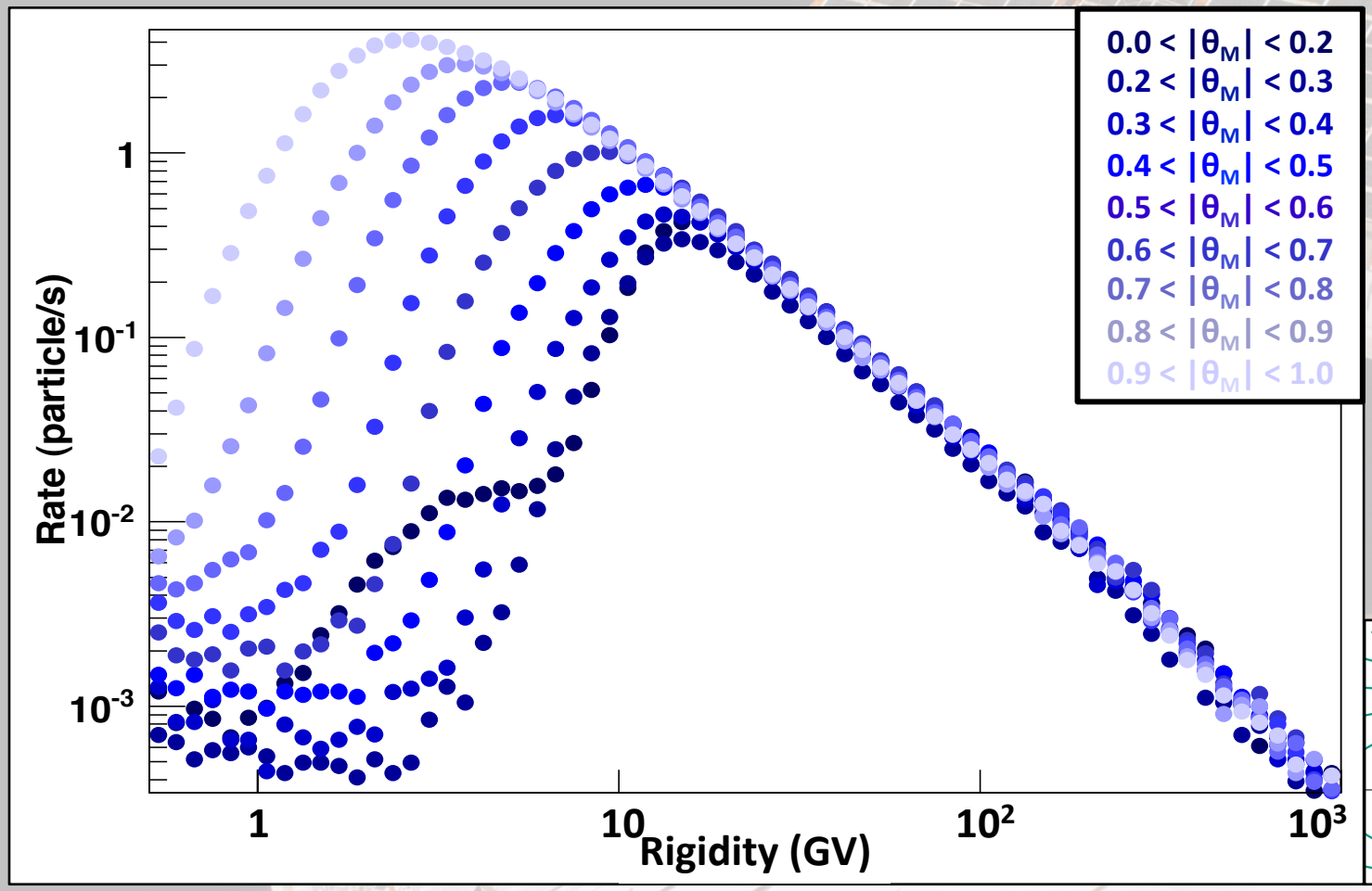
➔ **be sure that the cuts do not depend on the rigidity**

➔ **4 charge estimators : - Tracker Layer 1**
- Upper ToF
- Inner Tracker
- Lower ToF

➔ **finally the charge is selected with the Inner Tracker**

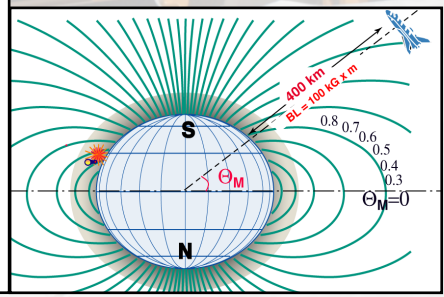


Helium Rate Measurement



How to distinguish between primary and secondary GCRs ?

➔ we need to take into account the geomagnetic cutoff



What is next ?

➔ disentangle primary/secondary CR flux

➔ include the other charge estimators

➔ estimate the acceptance