



Study of Energy Measurement of Cosmic Ray Nuclei with LHAASO

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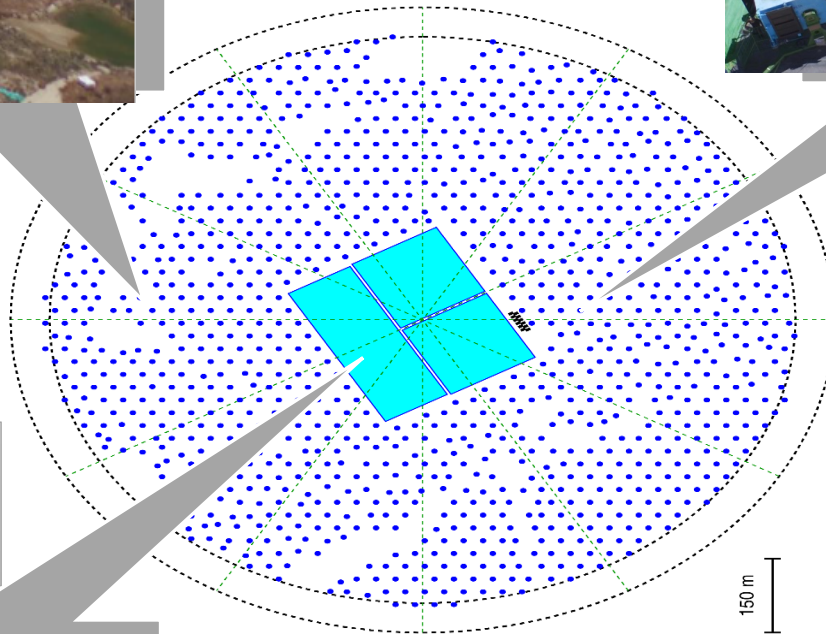
LHAASO *a hybrid detector*



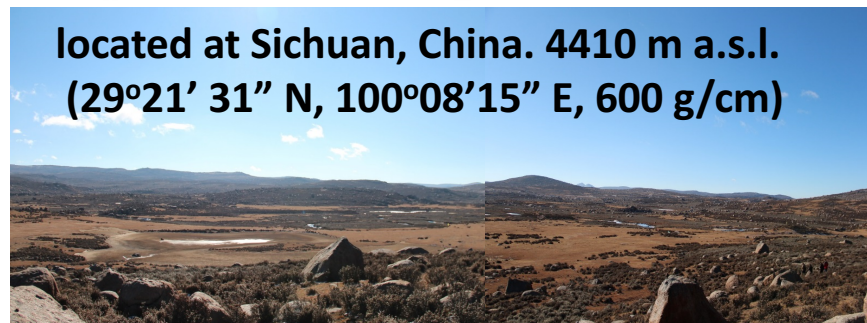
KM2A:
5195 EDs
1188 MDs

WFCTA:
18 Cherenkov
telescopes (1024
pixels/telescope)

WCDA: 78,000 m²
3120 cells
(25m²/cell)

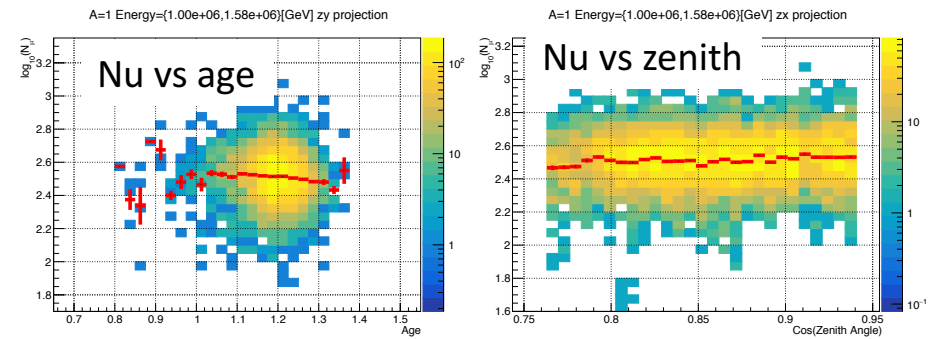
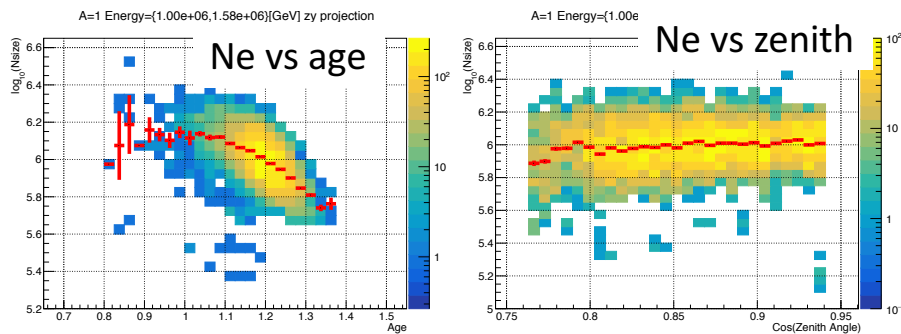


located at Sichuan, China. 4410 m a.s.l.
(29°21' 31" N, 100°08'15" E, 600 g/cm)



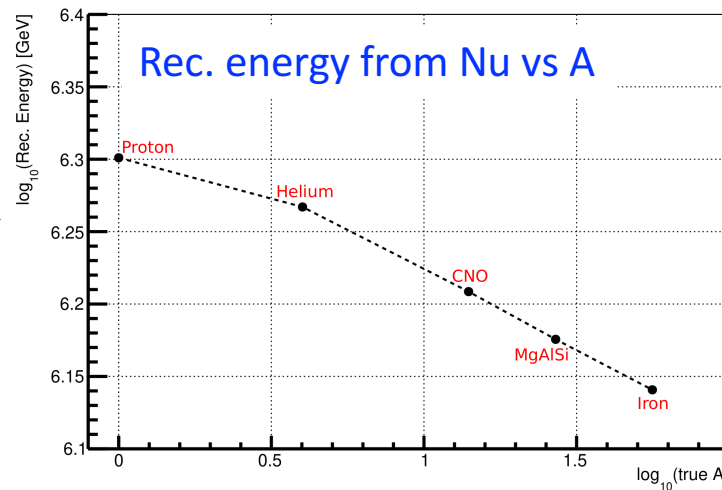
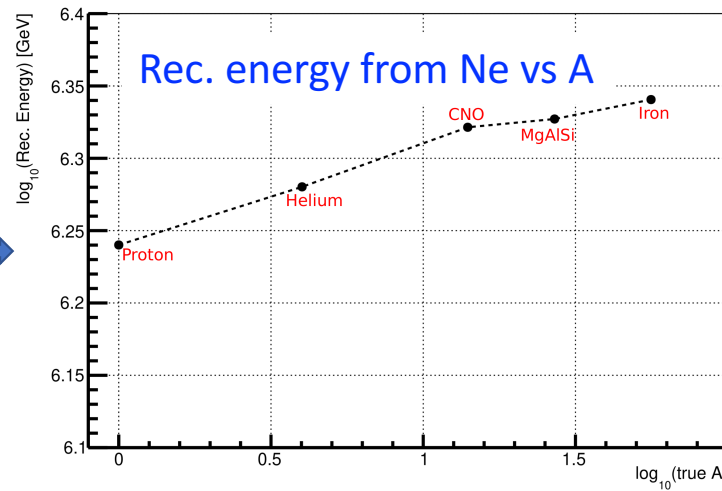
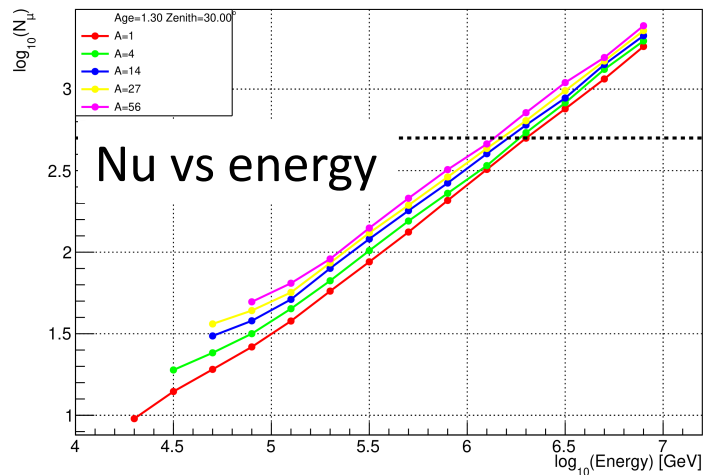
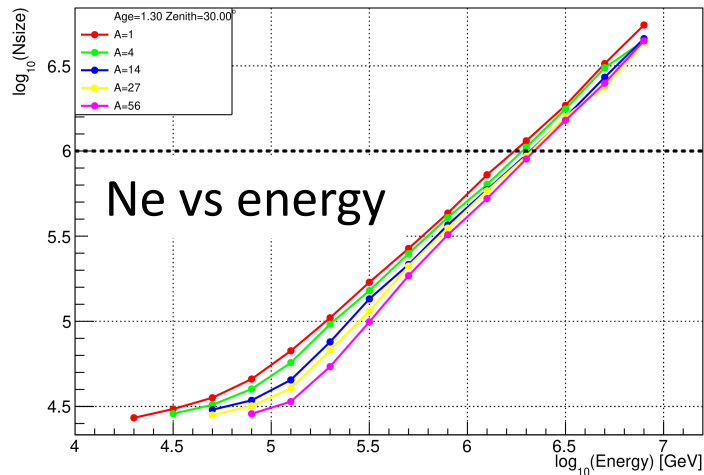
The Method

- The energy is reconstructed by combining Ne and Nu from LHAASO-KM2A
- Three effects were corrected based on Monte Carlo simulation:
 1. the zenith angle
 2. the age parameter from lateral distribution
 3. the mass of primary particle



Ne(or Nu) vs Energy

age=1.3, zenith=30°

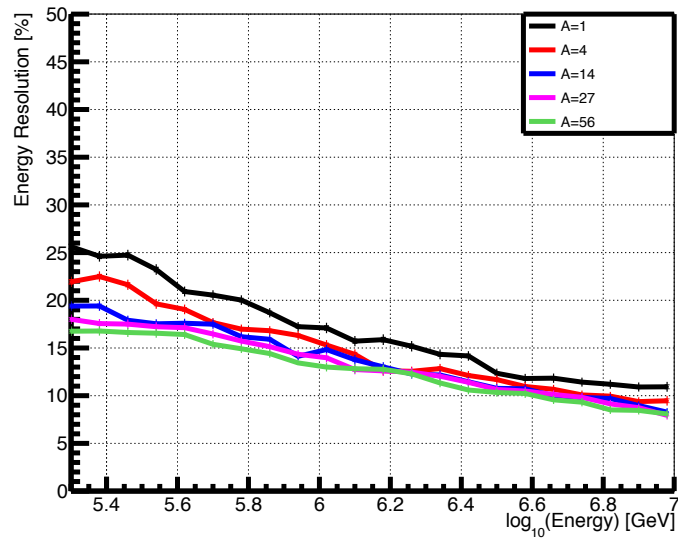


For a measured Ne (or Nu), energy is reconstructed for each type of primary particle.

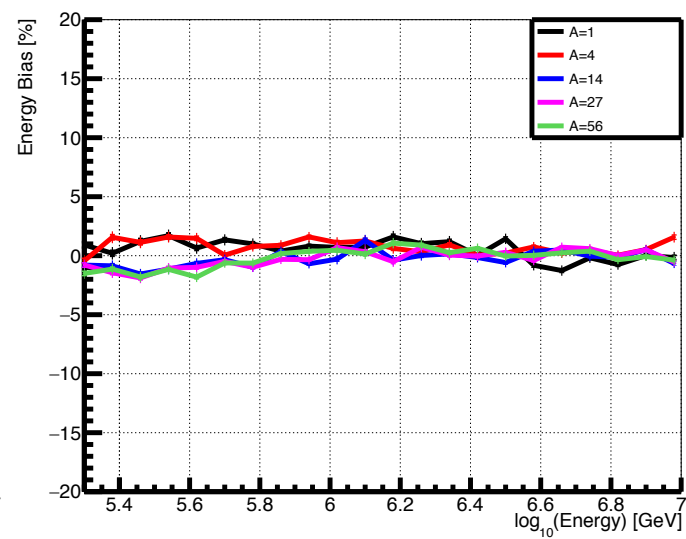
The mass dependences are corrected by combining the two measurements from Ne and Nu.

Result

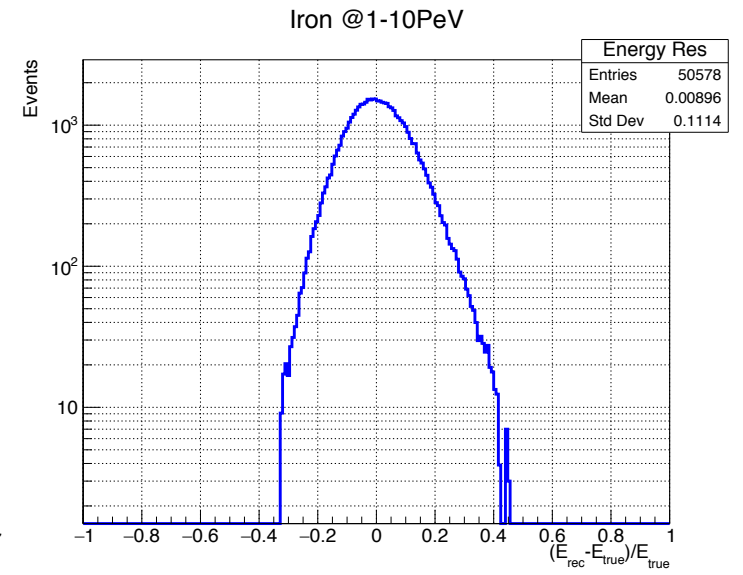
Energy Resolution



Energy Bias



Energy Resolution Function



Please find detailed information from: <https://pos.sissa.it/395/246>
or email me at huliu@swjtu.edu.cn