

Institute of High Energy Physics (IHEP), CAS
 Center for Space Science and Applied Research, CAS
 China Meteorological Administration
 Hebei Normal University
 Institute of Disaster Prevention Science and Technology
 Shandong University
 Southwest Jiaotong University
 Tibet University and Yunnan University
 Tsinghua University

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 ICRR, University of Tokyo
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YangBaJing International Cosmic Ray Observatory

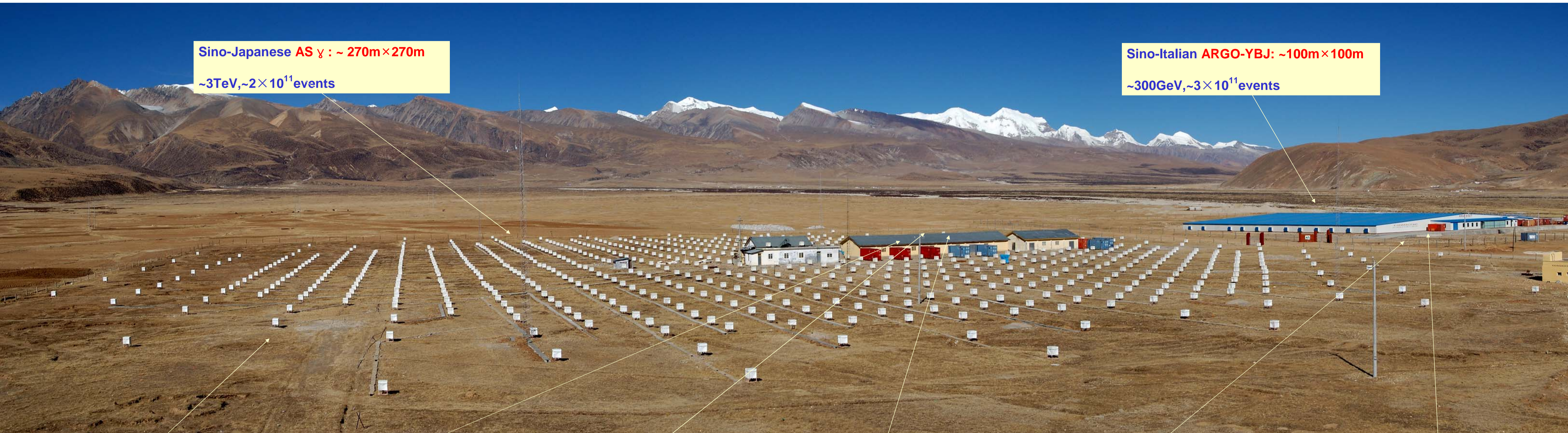
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 INFN Section of Napoli and University of Salerno, Benevento
 INFN and University Roma "Tor Vergata"
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 INFN and Institute of Cosmogeophysics of CNR, Torino
 INFN Section of Catania and Institute of Physics of Cosmic
 IFCA/CNR, Palermo and INFN Section of Pavia

The observatory is located at 90°26'E and 30°13'N in Yangbajing (YBJ) valley of Tibetan highland, about 90KM NW of Lhasa, the capital city of Tibet, China. Currently, the YBJ observatory hosts two cosmic ray experiments. One is a Sino-Japanese collaboration called AS γ , a sampling detector with 400 m² sensitive area covers an effective area of about 40,000m² and has been operating since 1990. Another one is a Sino-Italian experiment called ARGO-YBJ, a "full coverage" carpet detector with a very large sensitive area of about 6700m², and has been in operation since 2006.

AS γ uses scintillation counters and ARGO-YBJ uses resistive plate chambers (RPCs) to detect the arrival times and number densities of the secondary particles, with which the original direction and energy of the cosmic rays can be determined. Both experiments study the origin and acceleration of cosmic rays by measuring the spectrum and anisotropy of cosmic rays, by observing the TeV γ rays emission etc. As a sampling detector, AS γ has a threshold energy of a few TeV while ARGO-YBJ can significantly decrease the threshold energy down to a few hundred GeV. The two experiments have the advantages of high duty cycle and large field of view, which make them particularly suitable for sky surveys and observations of sporadic sources.

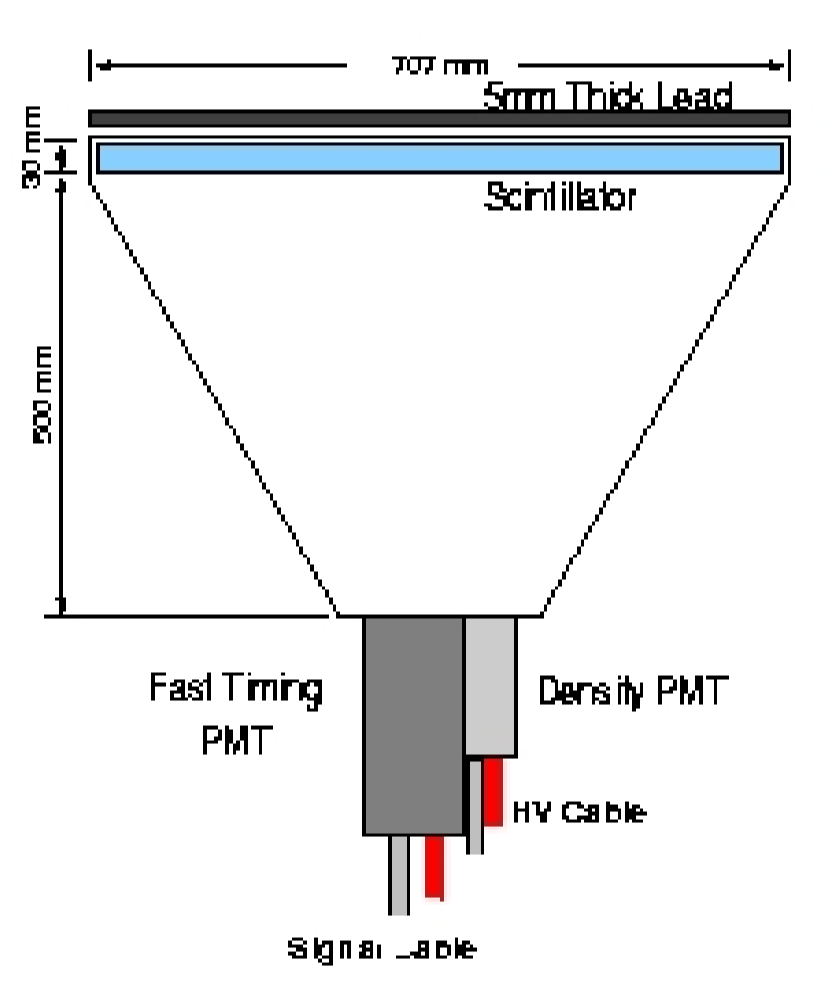
In addition, YBJ observatory is equipped with a neutron monitor system, a neutron telescope and a multi-directional muon telescope for solar cosmic rays observation. Various sensors are installed for thunderstorms, meteorologic and seismological studies. Recently, one sub-mm telescope from Delingha observatory in Qinghai has been moved to the site for astronomic observation. It is also planned to install a second telescope, coming from Germany.



Sino-Japanese AS γ : ~270m×270m
 ~3TeV, ~2×10¹¹ events

Sino-Italian ARGO-YBJ: ~100m×100m
 ~300GeV, ~3×10¹¹ events

AS γ scintillation counter



Solar neutron telescope (IHEP, Nagoya University,RIKEN)



Neutron monitor (IHEP, Nagoya University,RIKEN)



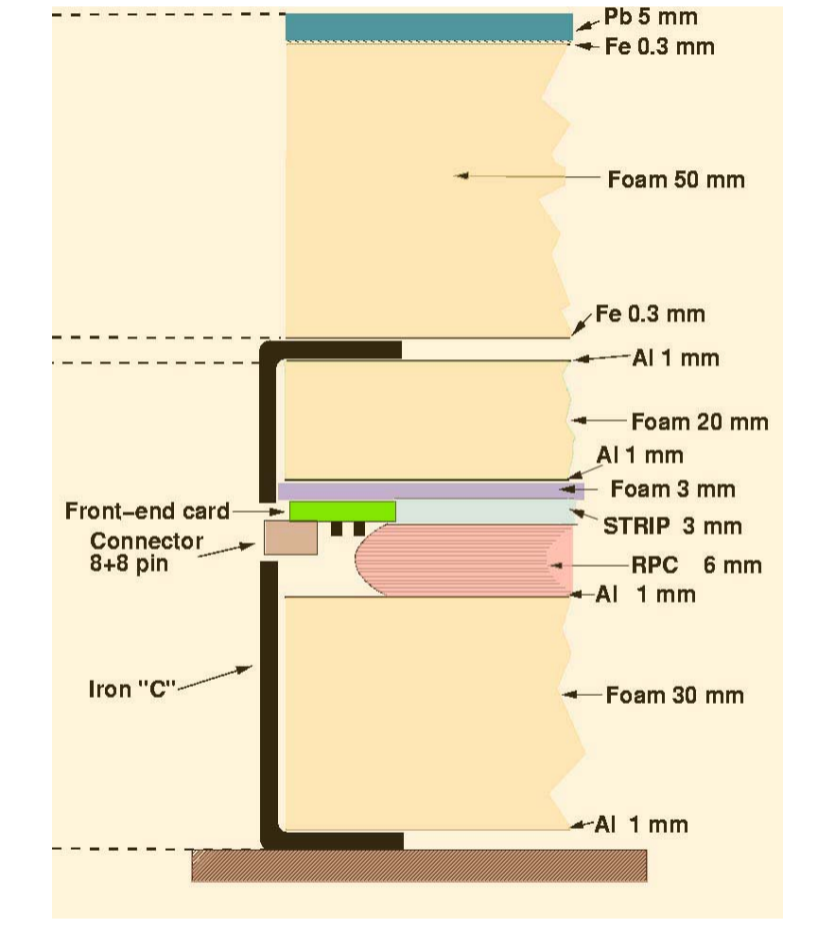
Multi-directional muon telescope and sandwich neutron system (IHEP)



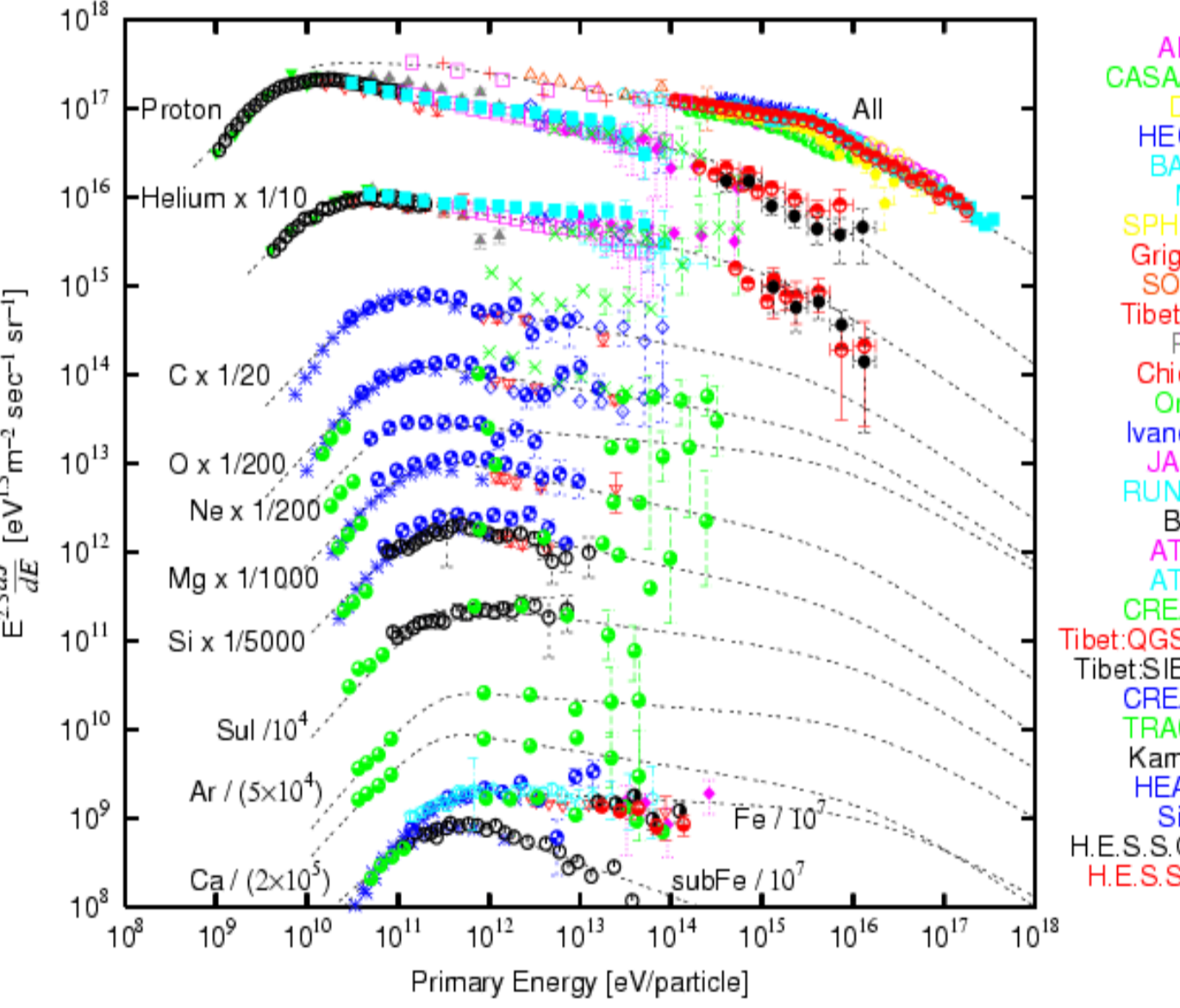
ARGO hall with carpet of RPCs



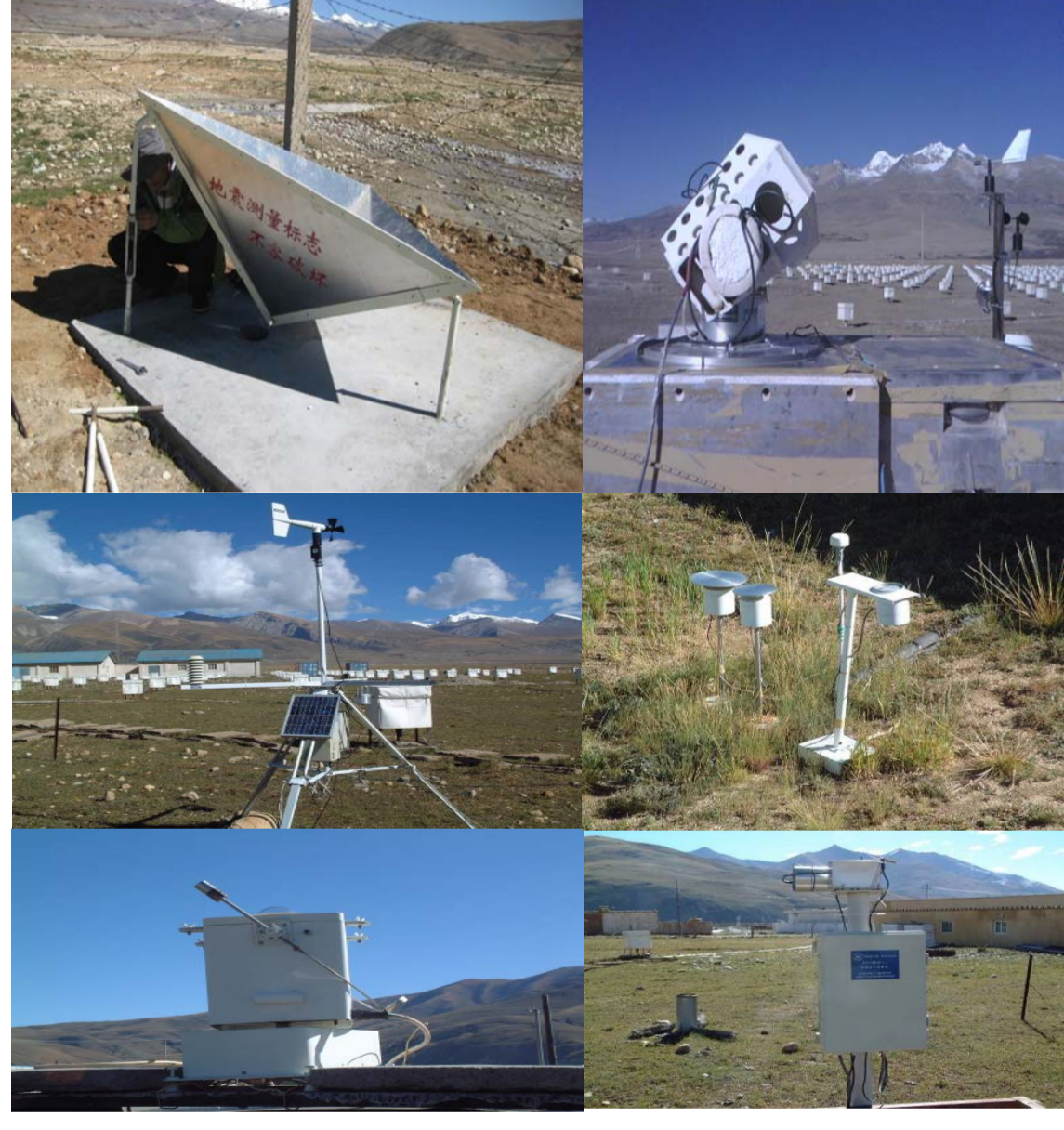
Resistive Plate Chamber



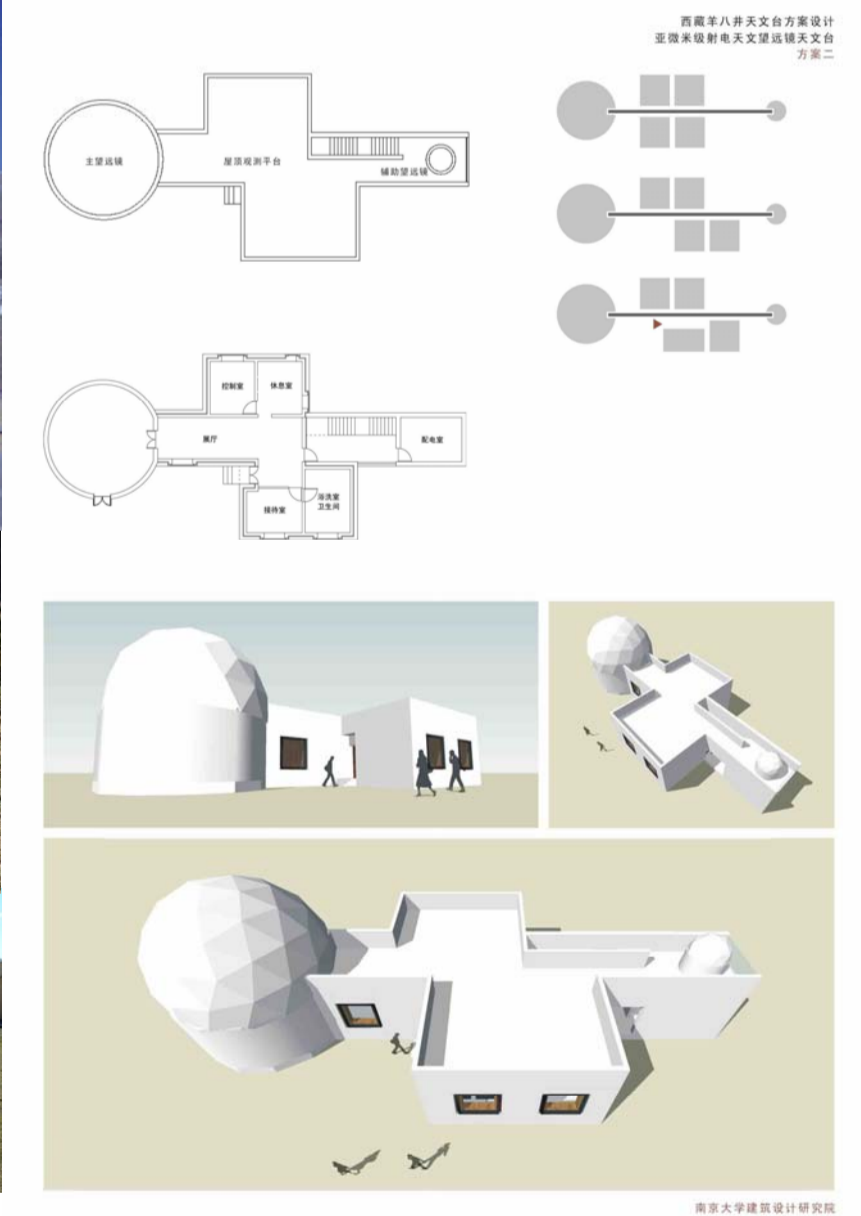
Proton/Helium spectra and sharp knee by AS γ (Phys. Lett. B 632, 58-64 (2006); ApJ, 678 1165-1179 (2008))



Corner reflector for crust deformation monitoring (IHEP & China Earthquake Administration)

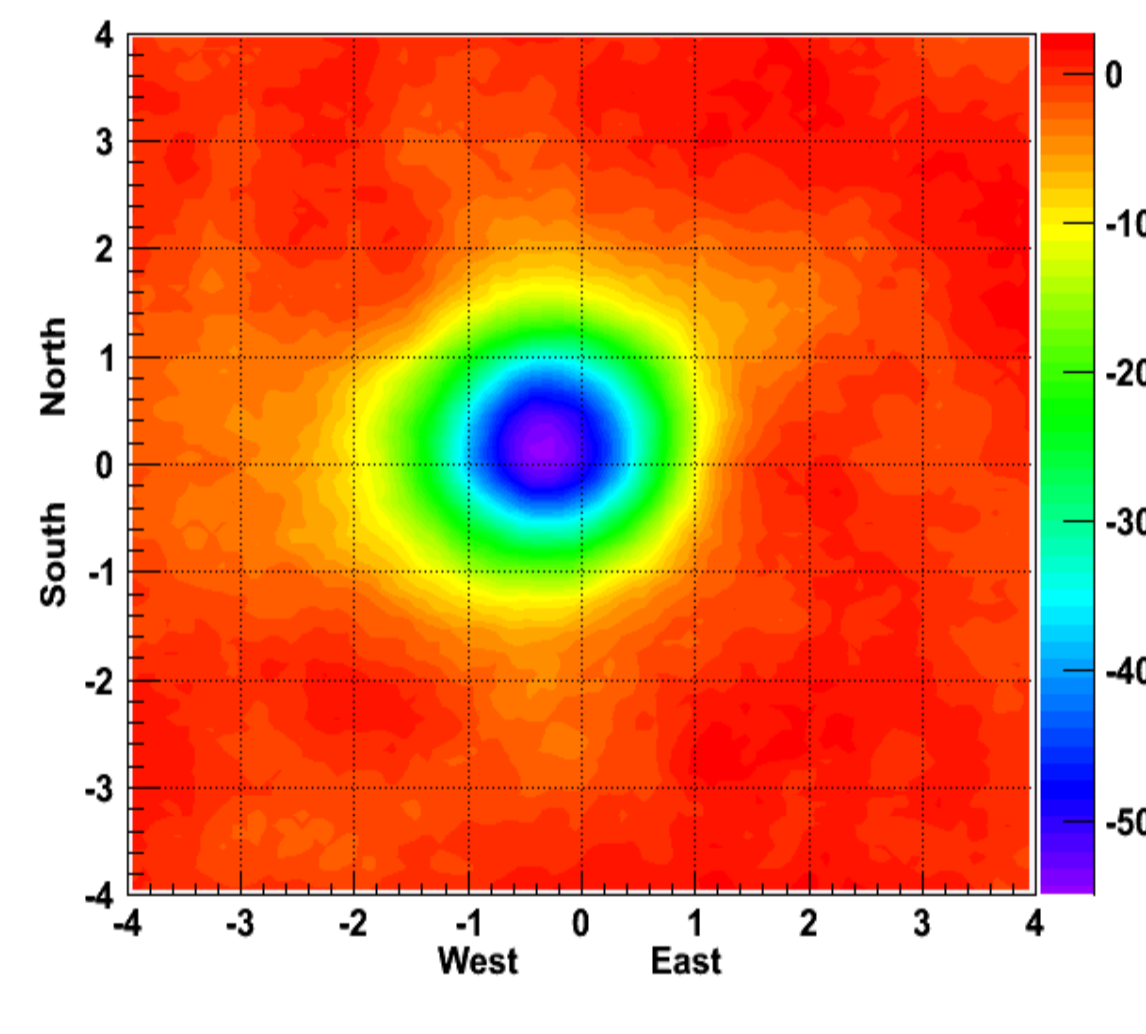


Sub-mm telescope from Delingha observatory (IHEP & MPO)

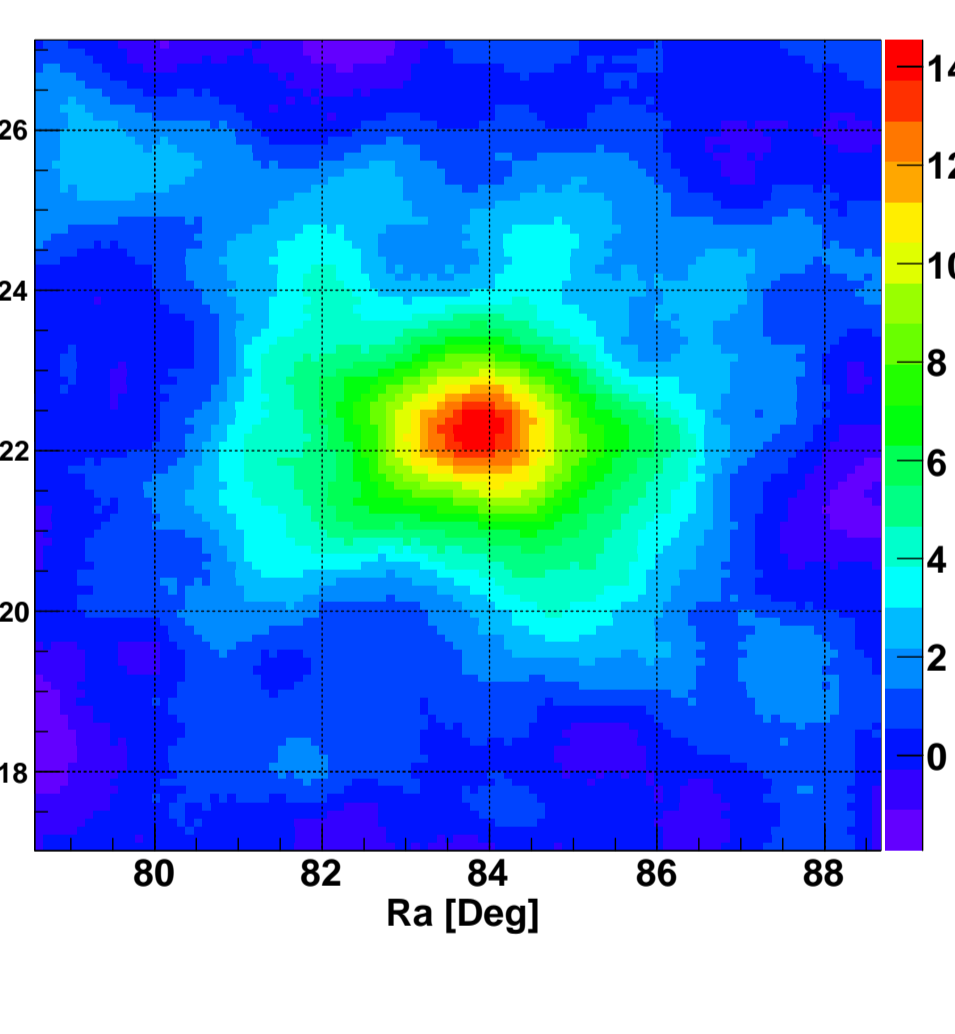


The KOSMA 3m Sub-millimeter telescope will be installed at YBJ observatory (IHEP&NAOC)

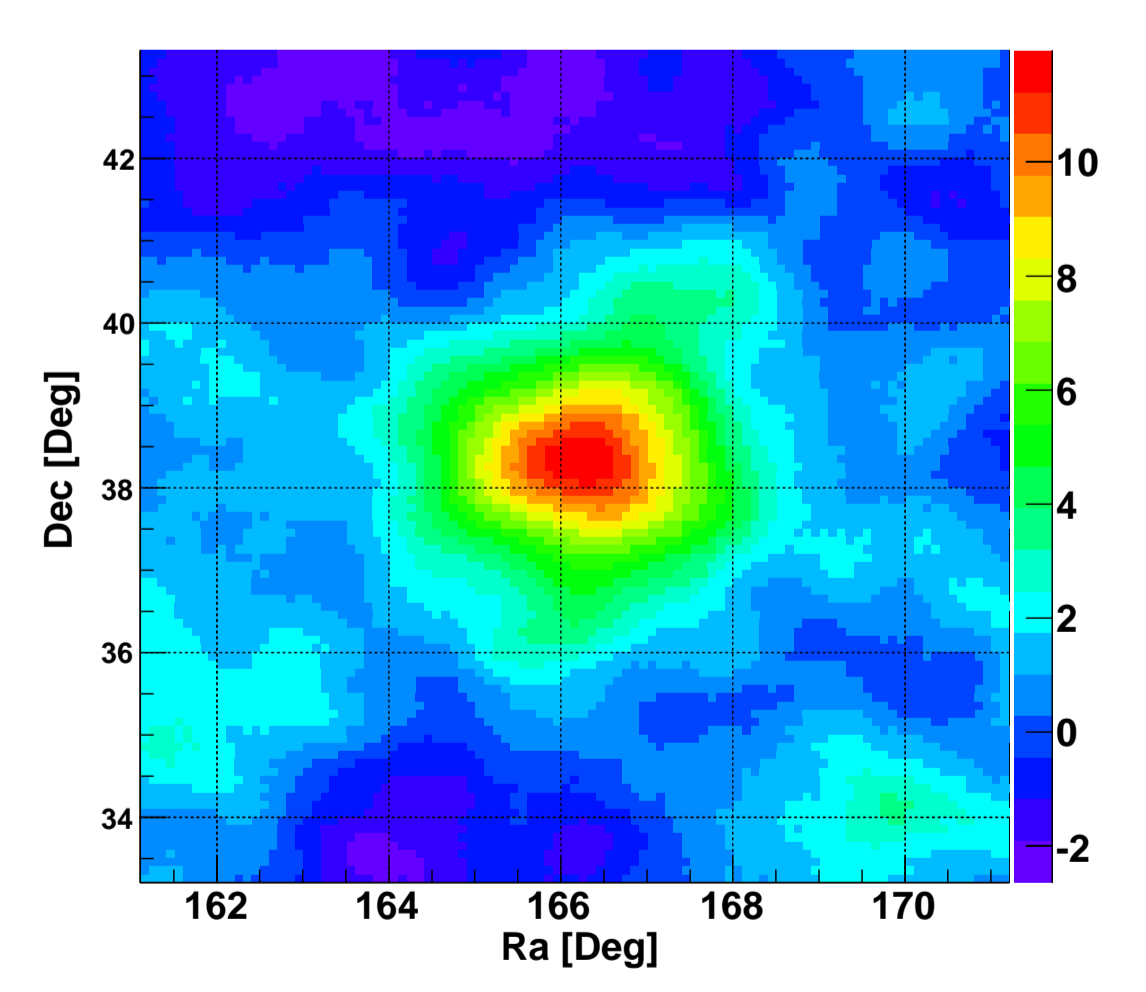
ARGO-YBJ images moon's shadow



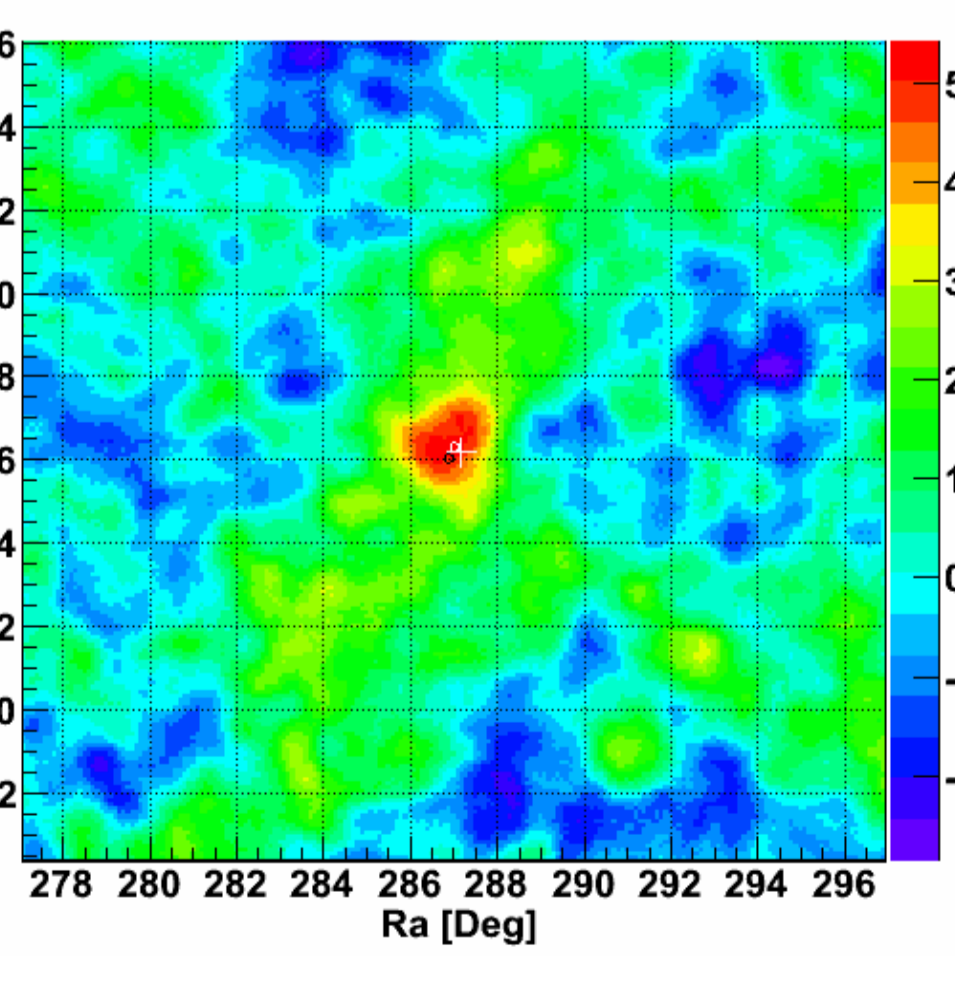
TeV γ rays from the crab nebula as observed by ARGO-YBJ



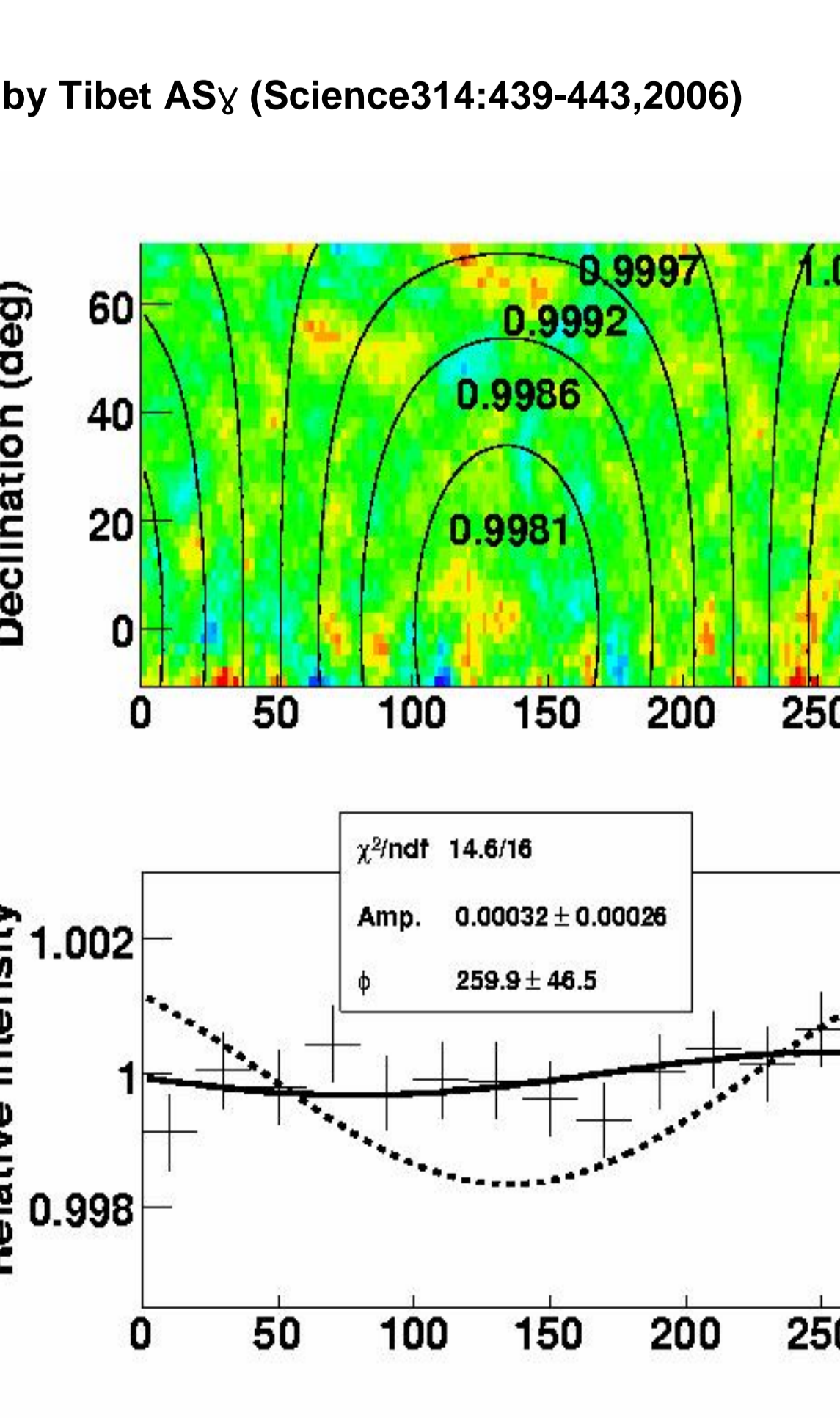
TeV γ rays emission from the extragalactic source Mrk421



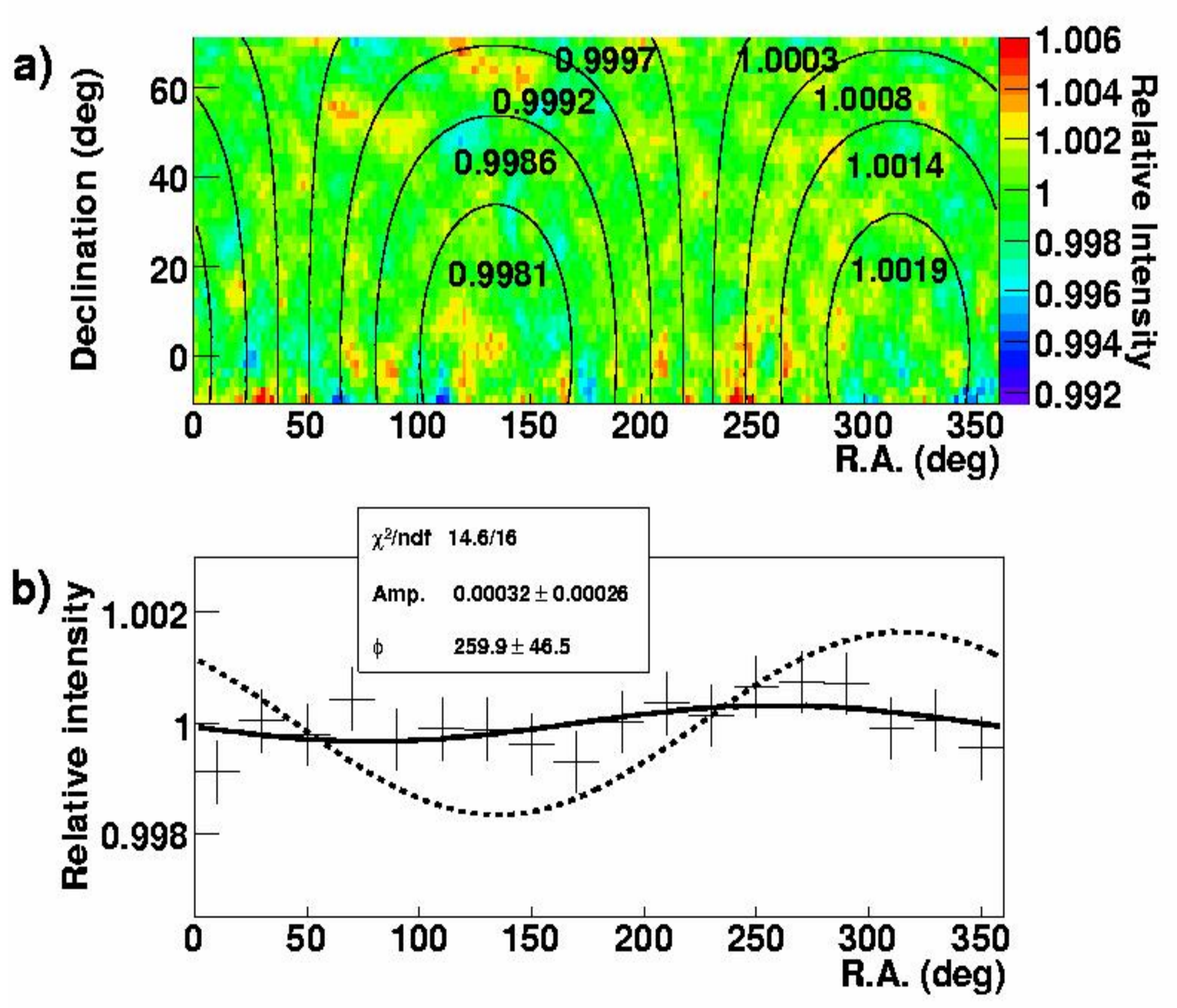
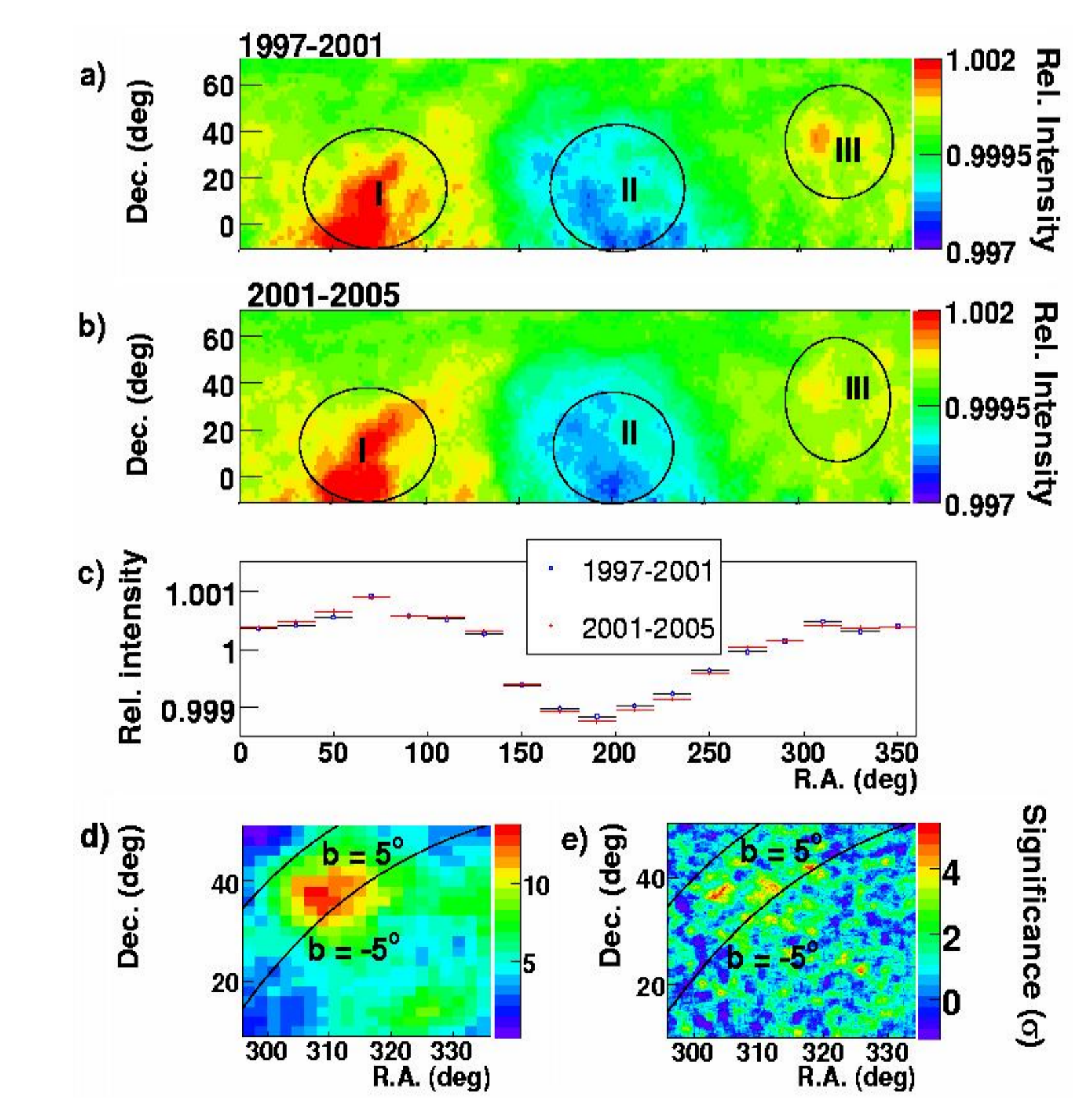
TeV γ rays emission from the MGRO 1908+06



Instruments for atmospheric and meteorologic observations (IHEP & Institute of Atmospheric Physics, CAS)



Anisotropy and Corotation of Galactic Cosmic Rays by Tibet AS γ (Science314:439-443,2006)



Proton-Air cross section measurements by ARGO-YBJ (Phys. Rev. D 80 (2009) 092004)

