

Fig. 3. Map of the pre-trials significances (in σ) obtained from an unbinned point source search using the full AMANDA-II data set. The most significant point has a significance of 3.38σ ; 95% of randomized background skymaps include a point at least as significant.



Figure 1. Skymap for the IceCube detector in the 40 string configuration for one year of data taken during 2008.

Muon energy reconstruction and atmospheric neutrino spectrum unfolding with the ANTARES detector

Correlation between reconstructed muon energy and true neutrino energy (from Monte Carlo)



#541

Palioselitis

Search for a diffuse flux of high-energy muon neutrinos with the ANTARES neutrino telescope Schüssler



Search for a diffuse flux of astrophysical muon neutrinos with the IceCube detector

#736 Schukraft



The Pierre Auger Observatory and ultra-high energy neutrinos





Searching for point sources of high-energy cosmic neutrinos with the ANTARES telescope

#295 Bogazzi

51 candidate sources





Astroparticle Physics at the Department of Astrophysics RU Nijmegen

- Charged cosmic rays LOFAR, Pierre Auger Observatory (Falcke, Hörandel) TRACER, KASCADE-Grande (Hörandel)
- Neutrino astronomy (Achterberg)
- Gamma ray astronomy CTA (Hörandel)
- Gravitational waves LISA (Nelemans)
- Magnetic fields in the Galaxy (Haferkorn)

Large-scale radio detectors to measure cosmic rays and neutrinos



LOFAR

LOFAR Radboud Air Shower Array

98 cm

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98 cm

20 scintillation detectors (~1 m² each) read out by wavelength shifter bar and PMT into 12-bit ADC (2.5 ns sampling rate)

LOFAR Radboud Air Shower Array

A measured air shower particle detectors & radio antennas

A measured air shower

lateral distribution

Detection of radiation induced by highenergy particles (cosmic rays & neutrinos) on the Moon

CR, v

~100 MHz

Objective:

measure radio emission from EAS in frequency range 30 MHz - 80 MHz

GPS

solar panel

electronics

- ~20 km² array with ~160 antennas
- operation together with infill/HEAT/AMIGA
- three antenna spacings to cover efficiently 17.2 < Ig E/eV < 19.0
- measure composition of cosmic rays in energy region of transition from galactic to extragalactic cosmic rays antenna

22 stations installed and taking data

Sky plot of reconstructed events

Run 1227 04 Nov 2010 20:56:42

BERTHER & NUMBER

prototype station for AERA-II

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