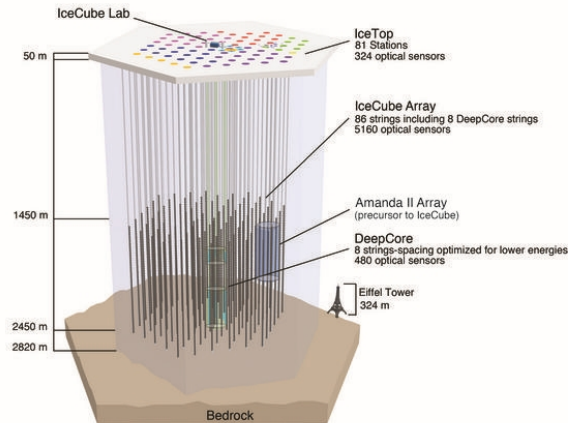


2013 FALL COLLOQUIUM

PRESENTED BY
THE DEPARTMENT
OF PHYSICS AND
ASTRONOMY

DR. THOMAS GAISSER

University of Delaware



Wednesday, September 25
Slideshow at 3:30 p.m., 104 GOR
Colloquium at 4 p.m., 104 GOR

COSMIC NEUTRINOS AND COSMIC PARTICLES IN ICECUBE

IceCube is a kilometer scale detector at the South Pole consisting of 5400 optical sensors that detect cosmic rays and neutrinos. The main array is shielded by 1.5 km of ice so that it can identify and reconstruct events generated by neutrinos, which are relatively rare compared to the background of atmospheric muons. On the surface above the neutrino detector is the IceTop air shower array, which is fully integrated into the data acquisition system of IceCube. Its main purpose is to measure the cosmic-ray spectrum at high energy, and it also provides a partial shield for the neutrino detector.

<http://www.bartol.udel.edu/gp/hepp/>

IceCube recently discovered the first evidence for neutrinos of high energy from extraterrestrial sources. In this talk I will describe the data and explain the significance of such a discovery. I will also describe how IceCube measures the spectrum of cosmic-ray particles and how they may be related to the neutrinos.

I will show slides of IceCube construction from 2003-2010, starting at 3:30 in Gore 104. Members of the UD IceCube group played a major role in construction of IceCube (especially IceTop) and continue to be involved with its operation and data analysis.

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