Abstract Submitted
for the CAL10 Meeting of
The American Physical Society

Neutrino Physics with IceCube MARIOLA LESIAK-BZDAK, Lawrence Berkeley National Laboratory, ICECUBE COLLABORATION — Detection of ultra-high-energy neutrinos will help us to identify the origins of the highest energy cosmic rays. The discovery of neutrinos from these distant sources should be possible with a cubic-kilometer detector: IceCube is the largest neutrino telescope in the world. It is currently taking data at the South Pole. IceCube currently consists of 79 strings housing nearly 5000 Digital Optical Modules at the depths from 1.45 to 2.45 km below the surface. Construction will finish in early 2011 bringing the total number of strings to 86. Utilizing the transparent ice of Antarctica as a detection medium, IceCube observes Cherenkov radiation from secondary particles produced in neutrino interactions inside or near the detector. IceCube is sensitive to all neutrino flavors over a wide range of energies, from below 100 GeV to beyond 10^9 GeV. Data from the partially completed IceCube has been searched for point-like and diffuse fluxes of astrophysical neutrinos. After reviewing the detection technique and performance of the IceCube neutrino telescope, we will discuss the current status of the IceCube experiment, highlighting some of the recent results.

Mariola Lesiak-Bzdak
Lawrence Berkeley National Laboratory

Date submitted: 30 Sep 2010 Electronic form version 1.4