

Abstract Submitted
for the APR14 Meeting of
The American Physical Society

Search For Correlation Between Known GRBs and Astrophysical Neutrinos As Observed By IceCube JAMES CASEY, IGNACIO TABOADA, Georgia Institute of Technology, ICECUBE COLLABORATION — Gamma-Ray Bursts (GRBs) have long been proposed as the sources of UHE cosmic rays. In many GRB models, high-energy neutrinos are predicted to be generated during various phases of the burst. The IceCube collaboration has reported the observation of 28 high-energy neutrinos which includes an astrophysical component. The sources of these events, however, have yet to be determined. We examine the temporal and directional correlations between the 28 events and 568 GRBs reported from May 2010 to May 2012 and find that there is no correlation between the neutrino events and the GRBs. We set an upper limit on the fraction of the astrophysical signal reported by IceCube that can be attributed to known GRBs. For correlations times up to ~ 20 hours, the 90% C.L. upper limit on the fraction of the astrophysical neutrino flux that can be due to known GRBs is 14%. For correlations times of up to 15 days, this upper limit is 36%.

James Casey
Georgia Inst of Tech

Date submitted: 10 Jan 2014

Electronic form version 1.4