

Abstract Submitted  
for the APR17 Meeting of  
The American Physical Society

**Analysis on TeV Gamma-ray Binary Systems and Candidates in the Northern Hemisphere with HAWC** CHANG DONG RHO, Univ of Rochester, HAWC COLLABORATION — Binary systems, which emit high-energy radiation, are natural testbeds for studying astrophysical particle acceleration and the production of Galactic cosmic rays. The emitted radiation may be modulated in time by the orbital period of the system, or may occur in very strong and unpredictable flares. However, while hundreds of binary systems have been observed in X-rays and radio, only a handful has been detected through TeV gamma rays. The High Altitude Water Cherenkov (HAWC) Observatory is a wide-field and high-uptime detector of TeV gamma rays that is particularly well suited to observe transient systems such as TeV binaries. Preliminary measurements of the 3 known TeV binary systems and 28 TeV binary candidates in the Northern Hemisphere were analyzed with HAWC at  $> 1$  TeV using 17 months of data. HAWC does not decisively observe any significant traces of the 31 systems / candidates yet. However, 95% upper limits were successfully assembled for the candidates with significance below 2 sigma.

Chang Dong Rho  
Univ of Rochester

Date submitted: 28 Sep 2016

Electronic form version 1.4