

Abstract Submitted  
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**A** **Topological** **Ar-**  
**ray Trigger for VERITAS** MARTIN SCHROEDTER, Iowa State University,  
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LABORATION — The Very Energetic Radiation Imaging Telescope Array System  
(VERITAS) is an array of four imaging atmospheric-Cherenkov telescope. A fast  
topological trigger system is being built as an upgrade to VERITAS (pending fund-  
ing) with the scientific goal of reducing the energy threshold for detection of gamma  
rays. The current trigger system results in a threshold of around 130 GeV, a re-  
flection of the background rates from cosmic rays and night-sky fluctuations. The  
topological trigger is being designed to further suppress both cosmic rays and night-  
sky accidentals. At the single-telescope trigger, the rate of night-sky fluctuations  
will be reduced by a factor of 10 through a narrower coincidence gate. Suppression  
of cosmic rays will occur at the array level by comparing the image parameters of  
at least 3 telescopes against a look-up table of simulated gamma rays. The topolog-  
ical trigger uses field-programmable gate arrays (FPGAs) and will be adaptable to  
different observing modes and special physics triggers, e.g. pulsars and bursts. The  
trigger design and expected performance are presented. This new trigger system  
could also find application in the planned Advanced Gamma-Ray Imaging System  
(AGIS).

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