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Measurement of TeV-scale gamma-ray flux from M31 using data from HAWC-100 ISABELLA BREWER, ANDREW SMITH, University of Maryland, College Park, HIGH ALTITUDE WATER CHERENKOV (HAWC) COLLABORATION — The High Altitude Water Cherenkov observatory (HAWC) is an air-shower array designed for detection of TeV-scale gamma rays. HAWC is located adjacent to the Sierra Negra volcano in Mexico, at an altitude of 4,100 meters. Andromeda Galaxy, M31, is a large nearby spiral galaxy and is a favorable candidate for dark matter detection by HAWC, but is also known to be a source of gamma-rays from cosmic accelerators. M31 has been detected by Fermi at the GeV scale with a flux consistent with that expected from a purely astrophysical origin. Many theories of dark matter predict gamma-ray emission up to the mass of the dark matter particle. For TeV-scale dark matter particles, HAWC may be well suited to indirectly detect a signal from M31 as the gamma-ray flux from astrophysical accelerators falls like a power-law with energy. The potential for detection of both diffuse emission and dark matter make M31 an interesting target. We will present the measurement of the TeV gamma-ray flux from M31 using data from the HAWC-100 detector.

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