VERITAS observations of the BL Lac 1ES 1218+304

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The VERITAS collaboration reports the detection of very-high-energy (VHE) gamma-ray emission from the high-frequency-peaked BL Lac object 1ES 1218+304 located at a redshift of z=0.182. A gamma-ray signal was detected with a statistical significance of 10.4 standard deviations (10.4 sigma) for the observations taken during the first three months of 2007, confirming the discovery of this object made by the MAGIC collaboration. The photon spectrum between ~160 GeV and ~1.8 TeV is well described by a power law with an index of Gamma = 3.08 +/- 0.34_stat +/- 0.2_sys. The integral flux is Phi(E > 200 GeV) = (12.2 +/- 2.6) X 10^-12 cm^-2 s^-1, which corresponds to ~6% of that of the Crab Nebula. The light curve does not show any evidence for VHE flux variability. Using lower limits on the density of the extragalactic background light in the near to mid-infrared we are able to limit the range of intrinsic energy spectra for 1ES 1218+304. We show that the intrinsic photon spectrum has an index that is harder than Gamma = 2.32 +/- 0.37_stat. When including constraints from the spectra of 1ES 1101-232 and 1ES 0229+200, the spectrum of 1ES 1218+304 is likely to be harder than Gamma = 1.86 +/- 0.37_stat.