



Gamma-ray burst observations with the H.E.S.S. Air Cherenkov array

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Abstract: Gamma-ray bursts (GRBs), being established as originating from highly-relativistic ejecta, are among the potential very-high-energy (VHE) gamma-ray and cosmic-ray sources. Particles are accelerated to highly-relativistic speeds. This might give rise to emission of VHE gamma-ray and/or cosmic-ray particles with energies $> 10^{15} - 10^{16}$ eV. VHE emission from GRBs during the prompt GRB phase or the afterglow phase is predicted by many GRB models. Despite its generally fast-fading behavior seen in many longer wavebands, the time evolution of any VHE radiation is still not clear. The highest energy radiation from GRBs ever detected firmly by any instrument was a 18 GeV photon coming from GRB 940217 detected with EGRET about 1.5 hour after the onset of the GRB. In order to probe the largely unexplored VHE spectra of GRBs, a GRB observing program has been set up by the H.E.S.S. collaboration. With the high sensitivity of the H.E.S.S. array and given favorable observational conditions, VHE flux levels predicted by GRB models are well within reach. Extra-galactic background light absorption is taken into account in cases where redshifts of the GRBs are known. We will present the H.E.S.S. observations of and results from some of the reported GRB positions during the past few years, including recent observations in early 2007. In one case, the burst position was observed within 10 minutes after GRB onset. Results will be given in the post-conference version of the proceedings.