

## **Particle acceleration in Binaries**

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Cygnus X-3 massive binary system is one of powerful sources of radio and X-ray emission consisting of an accreting compact object, probably a black hole, with a Wolf–Rayet star companion. Based on the detections of ultra high energy gamma-rays by Kiel and Haveria Park, Cygnus X-3 has been proposed to be one of the most powerful sources of charged cosmic ray particles in the Galaxy. The results of long-term observations of the Cyg X-3 binary at energies 800 GeV – 85 TeV detected by SHALON in 1995y are presented with images, integral spectra and spectral energy distribution. The identification of detected by SHALON source with Cygnus X-3 was secured by the detection of its 4.8 hour orbital period in TeV gamma-rays. During the all observation period of Cyg X-3 with SHALON the significant flux increases were detected at energies above 0.8 TeV. These TeV flux increases are correlated with flaring activity at lower energy range of X-ray and/or at observations of Fermi LAT as well as with radio emission from the relativistic jets of Cygnus X-3. The variability of very high-energy gamma-radiation and correlation of radiation activity in the wide energy range can provide essential information on the particle mechanism production the up to the very high energies. Whereas, modulation of very high energy emission connected to the orbital motion of the binary system, provides understanding of the emission processes nature and location of particle acceleration.