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## Galactic sources at TeV energy: Flaring activity of Cygnus X-3 and new binary 2129+47XR

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### Abstract content

The new galactic gamma-source neutron star 2129+47XR is detected at energy  $>0.8\text{TeV}$  with flux  $(0.19\pm 0.9)\times 10^{-12}\text{cm}^{-2}\text{s}^{-1}$  and index of the integral spectrum is  $k\gamma = -1.05\pm 0.10$ . Cygnus X-3 is peculiar X-ray binary system discovered about 40 years ago. The system has been observed throughout wide range of the electromagnetic spectrum. It is one of the brightest Galactic X-ray sources, displaying high and low states and rapid variability in X-rays. It is also the strongest radio source among X-ray binaries and shows both huge radio outbursts and relativistic jets. The radio activity is closely linked with the X-ray emission and the different X-ray states. Based on the detections of ultra high energy gamma-rays, Cygnus X-3 has been proposed to be one of the most powerful sources of charged cosmic ray particles in the Galaxy. The attempts of detection of TeV emission from Cygnus X-3 were first made in the mid of 1970s and continued through the mid 1980s. Two observations were particularly important: the Kiel results and contemporaneous observation at Haverah Park. These results indicated a very large UHE flux from Cygnus X-3. The 10 year's observation results of point source Cygnus X-3 by mirror Cherenkov telescope SHALON are presented. Cygnus X-3 has been regularly observed since a 1995 with average gamma-quantum flux of  $F(E_0 > 0.8\text{ TeV}) = (6.8\pm 0.7)\times 10^{-13}\text{cm}^{-2}\text{s}^{-1}$ . The energy spectrum of Cygnus X-3 at 0.8 - 65 TeV  $F(>E_0) \sim E^{k\gamma}$ , where  $k\gamma = -1.22\pm 0.04$  is obtained for the first time with flux on the order the less than upper limits published before. The flux in 2003 year is  $(1.79\pm 0.33)\times 10^{-12}\text{cm}^{-2}\text{s}^{-1}$ . The index of integral spectrum is  $k\gamma = -1.28\pm 0.06$ . Earlier, in 1997, the increase of flux was also observed  $(1.2\pm 0.5)\times 10^{-12}\text{cm}^{-2}\text{s}^{-1}$ . Thus, among ten observable gamma-quantum objects, there is galactic source Cygnus X-3, with periodic change of intensity. The variability of radiation can give essential information on a source nature. The binary Cyg X-3 came to new period of flaring activity at radio- and X-ray energies in 2006. In May and July 2006 the significant increase of Cyg X-3 flux have detected with SHALON at TeV energy.

**If this papers is presented for a collaboration, please specify the collaboration**

### Summary

### Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.);

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