

Optical Variability of X-ray selected BL Lacs

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BL Lac objects are characterized by rapid variability and high polarization. They are classified into radio-selected BL Lac objects (RBLs), and X-ray-selected BL Lac objects (XBLs), according to the bands used for the search. In general, RBLs show more variations than XBLs. Recently Perlman (1996, ApJS, 104, 251) has presented a new sample of XBLs, based on the Einstein Slew Survey (ESS), including 62 objects from which all TeV gamma-ray sources and candidates come (Stecker et al. 1996, ApJ 473, L75). To date there has been little photometric study of these objects. In addition, because of the limit of sensitivity of detector, TeV gamma-rays can only be detected during large outburst. By optical monitoring, we can predict when a TeV source or a candidate will be detectable in TeV energies. We have monitored 6 BL Lac objects in this sample and 5 other BL Lac objects from 1997 using the telescopes at the Sobaeksan Astronomical Observatory and Bohyunsan Optical Astronomy Observatory. Out of these objects, 1ES 2344+514 has been detected at TeV gamma-ray energies (Catanese et al. 1998, ApJ, 501, 616). None of our targets seem to show any micro-variabilities. However, some of them have shown day-to-month scale variability. The variability scales of these objects are : 1ES 0806+524 0.2mag/2months, 1ES 2344+514 0.12mag/1day, and 1ES 1215+303 0.2mag/2weeks. 3C 66A, one of the famous radio-selected blazars, showed active variations for 2 years.