

Are Cen A and M87 TeV Gamma-Ray Sources?

J.M. Bai^{1,2} and Myung Gyoon Lee¹

¹Astronomy Program, SEES, Seoul National University, Seoul, Korea

²Yunnan Astronomical Observatory, The Chinese Academy of Science, Kunming
650011, China

Recently we have shown that there exist two subclasses of Fanaroff-Riley I (FRI) radio galaxies: one is high-energy-peaked BL Lac objects(HBL)-like objects and the other is low-energy-peaked BL Lac objects(LBL)-like objects (Bai & Lee 2000, ApJ, submitted). In this paper we identify Cen A and M87, two nearby FRI radio galaxies, with HBL-like objects, by investigating their spectral energy distributions (SEDs). The peak of SED of Cen A jet around 150 keV, which was usually thought to be the peak of inverse-Compton emission as in the case of 3C 273, is actually the peak of synchrotron emission. The synchrotron emission of M87 jet peaks at soft X-ray energy range. By assuming an Self-Synchrotron-Compton (SSC) radiation mechanism, we predict that Cen A may peak its power output of Compton component at around 100 TeV, thus being a TeV and PeV gamma-ray source, and that M87 may peak its Compton emission at around 1 TeV. With the investigation of long term variability, we predict that Cen A may outburst soon and will be detectable at TeV and PeV gamma-rays. We propose to monitor it with the high energy telescope CANGAROO II.