

The Blazar Times

A Research Newsletter Dedicated to the BL Lac and Blazar Phenomena

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Campaign Announcement

Multiwavelength campaigns on AO 0235+16 and 3C 66A

The Whole Earth Blazar Telescope (WEBT, <http://www.to.astro.it/blazars/webt/>) collaboration announces the forthcoming two multiwavelength observing campaigns on AO 0235+16 and 3C 66A.

The first campaign, on AO 0235+16, aims at the study of the long-term variability of the source in the radio and optical bands, and also at higher energies (an XMM proposal has just been approved). In particular, the continuous monitoring will allow to check the predicted periodicity of the main radio (and optical) outbursts. The campaign will last from July 2003 to April 2004; the Campaign Manager is Claudia M. Raiteri.

Details about the campaign can be found at http://www.to.astro.it/blazars/webt/claudia_0235.html.

The second campaign, on 3C 66A, will last from September to December 2003 and will be coordinated by Markus Böttcher. The accent here is more on intensive radio/optical monitoring to be put in correlation with high-energy observations by RXTE and by TeV detectors.

Details about the campaign can be found at http://www.to.astro.it/blazars/webt/markus_0219.html.

Astronomers who are willing to contribute to these campaigns with observations at any wavelength are kindly invited to contact the Campaign Managers and the WEBT President (raiteri@to.astro.it, mboett@helios.phy.ohiou.edu, villata@to.astro.it).

Journal Abstracts

Coordinated Multiwavelength Observations of BL Lacertae in 2000

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BL Lacertae was the target of an extensive multiwavelength monitoring campaign in the second half of 2000. Simultaneous or quasi-simultaneous observations were taken at radio (UMRAO and Metsähovi) and optical (WEBT collaboration) frequencies, in X-rays (BeppoSAX and RXTE), and at VHE gamma-rays (HEGRA). The WEBT optical campaign achieved an unprecedented time coverage, virtually continuous over several 10 – 20 hour segments.

It revealed intraday variability on time scales of ~ 1.5 hours and evidence for spectral hardening associated with increasing optical flux. During the campaign, BL Lacertae underwent a major transition from a rather quiescent state prior to September 2000, to a flaring state for the rest of the year. This was also evident in the X-ray activity of the source. BeppoSAX observations on July 26/27 revealed a rather low X-ray flux and a hard spectrum, while a BeppoSAX pointing on Oct. 31 – Nov. 2, 2000, indicated significant variability on time scales of \lesssim a few hours, and provided evidence for the synchrotron spectrum extending out to ~ 10 keV during that time. During the July 26/27 observation, there is a tantalizing, though not statistically significant, indication of a time delay of $\sim 4 - 5$ hr between the BeppoSAX and the R-band light curve. Also, a low-significance detection of a time delay of 15 d between the 14.5 GHz and the 22 GHz radio light curves is reported. Several independent methods to estimate the co-moving magnetic field in the source are presented, suggesting a value of $\sim 2 e_B^{2/7}$ G, where e_B is the magnetic-field equipartition factor w.r.t. the electron energy density in the jet.

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For preprints via WWW: http://www.phy.ohiou.edu/~mboett/mw_bllac2000.html

High Energy γ -rays From FR I Jets

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Thanks to *Hubble* and *Chandra* telescopes, some of the large scale jets in extragalactic radio sources are now being observed at optical and X-ray frequencies. For the FR I objects the synchrotron nature of this emission is surely established, although a lot of uncertainties – connected for example with the particle acceleration processes involved – remain. In this paper we study production of high energy γ -rays in FR I kiloparsec-scale jets by inverse-Compton emission of the synchrotron-emitting electrons. We consider different origin of seed photons contributing to the inverse-Compton scattering, including nuclear jet radiation as well as ambient, stellar and circumstellar emission of the host galaxies. We discuss how future detections or non-detections of the evaluated γ -ray fluxes can provide constraints on the unknown large scale jet parameters, i.e. the magnetic field intensity and the jet Doppler factor. For the nearby sources Centaurus A and M 87, we find measurable fluxes of TeV photons resulting from synchrotron self-Compton process and from comptonisation of the galactic photon fields, respectively. In the case of Centaurus A, we also find a relatively strong emission component due to comptonisation of the nuclear blazar photons, which could be easily observed by *GLAST* at energy ~ 10 GeV, providing important test for the unification of FR I sources with BL Lac objects.

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Abstract Guidelines

Abstracts for “The Blazar Times” are solicited for papers that have been recently accepted for publication by a refereed journal, and for recent Ph.D. theses. Please do not submit an abstract before it has been accepted, nor after it is published. Abstracts from papers which are not refereed (e.g., conference proceedings) are not accepted.

The subject matter should pertain directly to the BL Lac and/or blazar phenomenon in general. Both observational and theoretical abstracts are appropriate. Abstracts from papers dealing with other classes of AGN will generally not be included unless they explicitly discuss their relevance to the blazar phenomenon; however exceptions to this rule will be considered.

A monthly call for abstracts will be issued and abstracts received by the last day of the month will usually appear in the following month’s newsletter. Announcements of general interest to the BL Lac and blazar communities may also be submitted for posting in the newsletter. These might include (but are not restricted to) the following: (i) *Job Openings* directed toward blazar researchers, (ii) announcements of *Upcoming Meetings*, (iii) announcements of *Upcoming Observing Campaigns* for which participation is solicited from the community at large, (iv) reviews of *New Books*, and (v) *General Announcements* that provide or request research-related information.

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