

The Blazar Times

A Research Newsletter Dedicated to the BL Lac and Blazar Phenomena

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Journal Abstracts

2QZJ215454.3-305654: a radio-quiet BL Lac object or lineless QSO?

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High signal-to-noise spectroscopy has established a redshift of $z = 0.494$ for the source 2QZJ215454.3–305654, originally selected from the 2dF/6dF QSO Redshift Surveys as one of 45 candidate BL Lac objects displaying a featureless continuum at optical wavelengths. Radio observations using the Australia Telescope Compact Array at 1.4 GHz place a 3 sigma upper limit on the object's radio flux density of approx 0.14mJy. The radio-to-optical flux ratio of this object is thus more than 7 times lower than the lowest such ratio observed in BL Lac objects. While the optical properties of 2QZJ215454.3–305654 are consistent with a BL Lac identification, the lack of radio and/or X-ray emission is not. It is uncertain whether this object is an AGN dominated by optical continuum emission from an accretion disk, or is similar to a BL Lac object with optical nonthermal emission from a relativistic jet.

Accepted by MNRAS

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A sample of low redshift BL Lacs. I. The radio data.

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We present a new sample of 30 nearby ($z < 0.2$) BL Lacs, selected to study the nuclear as well as the large scale properties of low power radio sources. In this first paper, we show and discuss new radio data taken with the VLA (19 objects at 1.4 GHz, either in A or C configuration, or both) as well as with the VLBA (15 sources at 5 GHz). On the kiloparsec scale, all objects exhibit a compact core and a variety of radio morphologies (jets, halos, secondary compact

components). On the parsec scale, we find weak cores and a few short, one-sided, jets. From the jet/counter-jet ratio, core dominance, and synchrotron self Compton model we estimate the intrinsic orientation and velocity of the jets. The resulting properties of BL Lacs are similar to those of a parent population composed of FR I radio galaxies.

Accepted by ApJ

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For preprints via WWW: <http://arxiv.org/abs/astro-ph/0406255>

Near Infrared Intraday Variability of Mrk 421

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We report results from our monitoring of the BL Lac object Mrk 421 in the near-IR J band. The observations, aimed at studying the intraday variability (IDV) of the object, were carried out systematically over an extended (and near-continuous) period of eight nights from the 1.2m Mount Abu Infrared Telescope, India. There are limited studies for Mrk 421 in the J band for such an extended period. The observation epoch for this study (25 February - 5 March 2003) was chosen to significantly overlap other concurrent studies of Mrk 421 in the X-ray/ γ -ray regions being conducted using the Rossi X-ray timing explorer (RXTE) and the solar tower atmospheric Cherenkov effect experiment (STACEE). Hence these results could be useful for a multi-wavelength analysis of the variability behavior of Mrk 421. We find that Mrk 421 was quite active during the observed period and showed significant IDV and short term variability. A maximum variation of 0.89 magnitudes is seen over the entirety of the observed period. Flaring activity, with typical brightness variations of ~ 0.4 , are also seen on several occasions. The extent of the variability observed by us is compared with the results of other similar studies of Mrk 421 in the J band.

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For preprints via ftp or WWW: <http://xxx.lanl.gov/abs/astro-ph/0405186>

The WEBT campaigns on BL Lacertae Time and cross-correlation analysis of optical and radio light curves 1968–2003

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The Whole Earth Blazar Telescope (WEBT) collaboration has collected a large amount of optical and radio data on BL Lacertae in the last years, which, when added to literature data, allow to construct well-sampled light curves of the source from 1968 to the end of 2003. These optical and radio data are here analysed with three statistical methods designed for unevenly-sampled data trains in order to search for possible periodicities. While the main radio outbursts repeat every ~ 8 years, with a possible progressive stretching of the period, the evidence of an optical periodicity is much less clear. Radio light curves from 4.8 to 37 GHz are well correlated, with variations at the higher frequencies leading the lower-frequency ones by a few weeks for contiguous bands, up to a few months when considering the largest frequency separations. The radio behaviour reveals the presence of two different components, the softer-spectrum one constituting the bulk of the radio emission. On the other hand, the harder component shows itself as radio events which appear enhanced at the higher frequencies and seem to have optical counterparts. Cross-correlation between the optical light curve and radio hardness ratios indicates a radio time delay of more than 3 months. Thus, our analysis suggests a scenario where flux variations propagate towards less and less opaque regions, giving rise to related optical and hard radio events and, in more extended zones, to soft events apparently uncorrelated with the former ones.

Accepted by A&A

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For preprints via ftp or WWW: http://www.to.astro.it/blazars/bllac2001b_preprint.zip

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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