

Brazilian Center for Research in Physics / CBPF

The Brazilian Science Data Center

An experience in the context of 'Open Universe'

Ulisses Barres de Almeida (CBPF) on behalf of the BSDC Team*









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A cost-effective model for developing countries

Requirements for a Science Data Center in the context of the 'Open Universe' initiative:



INCREASE TRANSPARENCY of already accessible resources: including promoting FAIR (Findable, Accessible, Interoperable, Reusable gail ling processing from raw data to web ready products, enhanced data-mining and integration solutions, interfacing and facilitating cooperation between data providers and data centres and archives...



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- Strong interaction with the community of users and providers
- A platform open for other people's data and software tools / ideas.



- Space science for development. Transparent access to data + flexible and meaningful tools for data handling have the potential to impact in education and formation of human resources.
- Scientific information in the right context. Data mining and integration is crucial for driving knowledge and potential new research avenues, specially in the era of big data.



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Not a repository, not a set of protocols.

A data mining platform.



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... but also

Collaboration with other VO services and Open Universe. The
BSDC is built for a context of cooperation, concerned with delivering
products and productivity — a model we consider interesting for other
emerging countries.



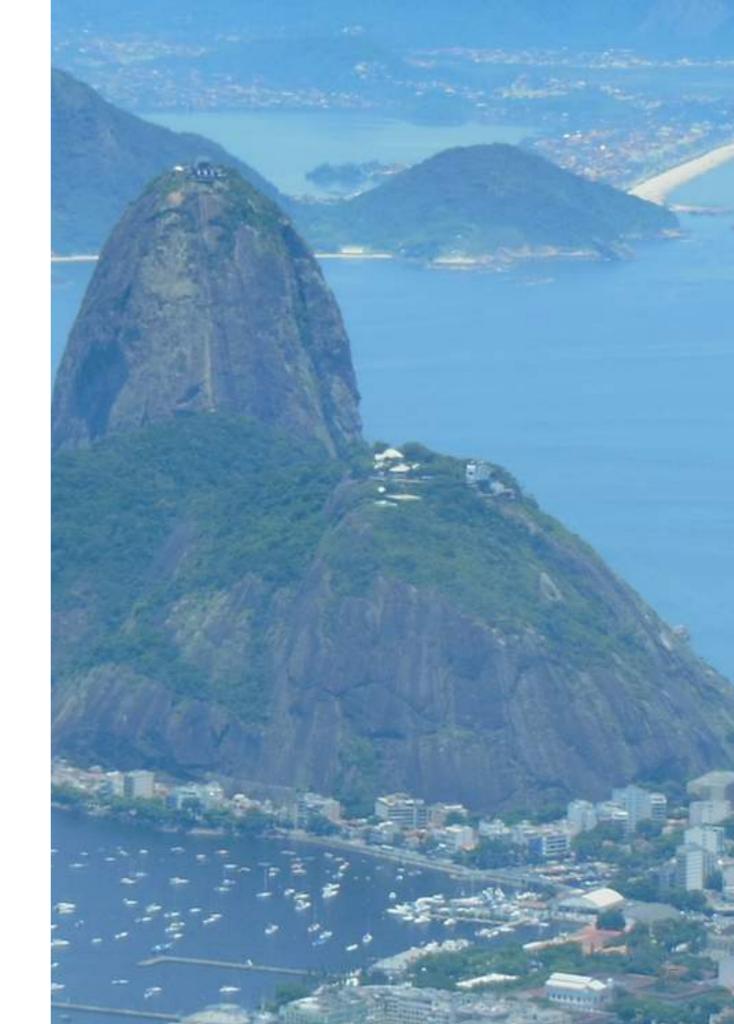
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The BSDC is in development at CBPF (Rio) since 2016. First, as a database experiment in the context of scientific collaborations between Brazil and ICRANet.



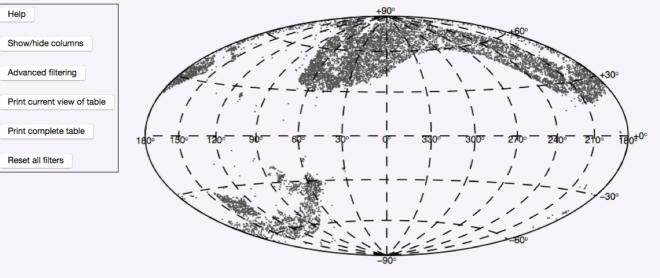


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SDSS White Dwarf catalog;

White dwarf stars in the Sloan Digital Sky Survey DR-10

On-line table at BSDC



S.O. Kepler et al. 2015 MNRAS 446, 4078 ADS abstract Last update: 14 January 2015

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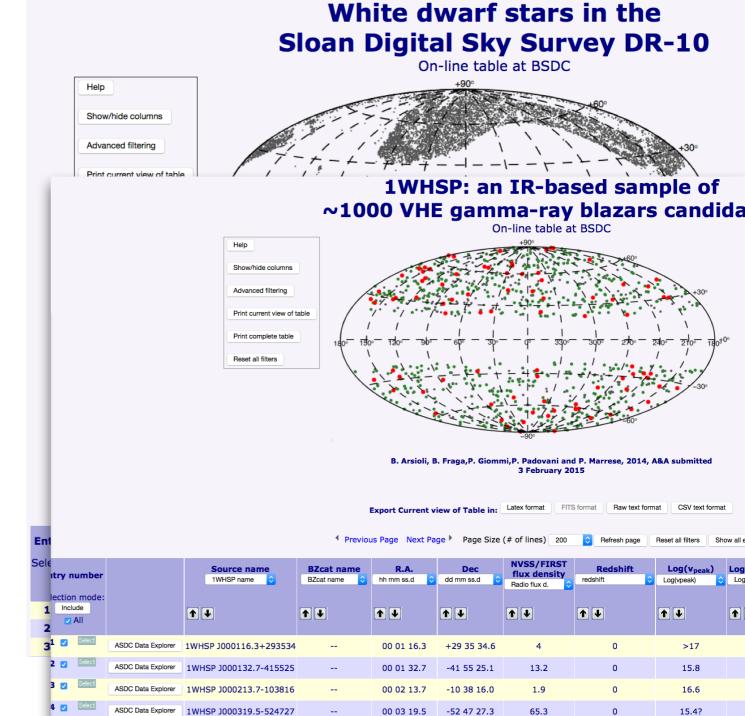
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The BSDC is in development at CBPF (Rio) since 2016. First, as a database experiment in the context of scientific collaborations between Brazil and ICRANet.

- SDSS White Dwarf catalog;
- WISE Blazar Candidates Catalogues;



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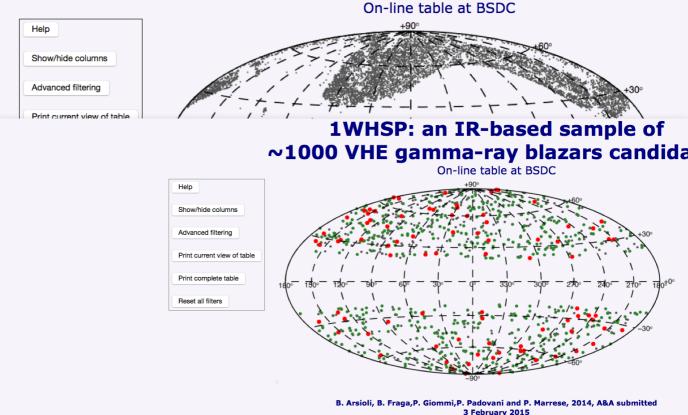


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the brazilian science

- SDSS White Dwarf catalog;
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- New Catalog of Fermi-LAT BLLacs;

White dwarf stars in the Sloan Digital Sky Survey DR-10



I-BIGB Catalogue

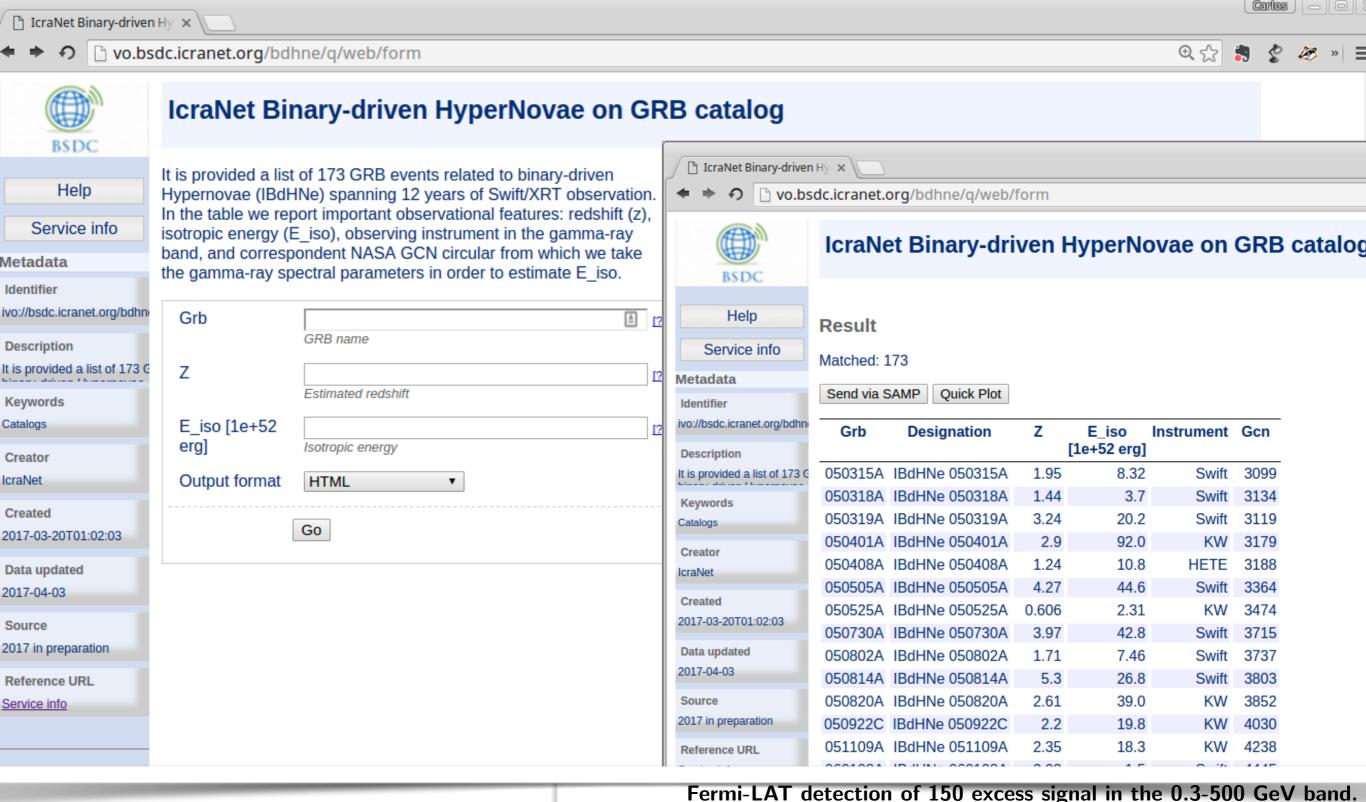
1st brazilian-ICRANet gamma-ray blazers catalog

Astronomy & Astrophysics manuscript no. 150NewGammaRaySources September 28, 2016

© ES

Searching for γ -ray signature in WHSP blazars: Fermi-LAT detection of 150 excess signal in the 0.3-500 GeV band.

B. Arsioli^{1,2,3} and Y-L. Chang^{1,2}



- SDSS White Dwarf catalog;
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- ICRANet GRB Catalog...



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Since early 2017, motivated by the Open Universe Initiative, we are building a full-scale online data platform.



BSDC-VO

Welcome to the BSDC Virtual Observatory.

This is the web interface for all catalogs hosted in our data base. Each of the catalogs related pages will provide you a form to better, specifically choose the objects you want based on location, name or properties in some cases. In case you want to select/view the entire catalog just leave all the fields blank and push the **Go** button.

The catalogues you'll find should also be accessible through IVO managed services, like SCS, SSA and TAP protocols.

Please check out for the additional services provided <u>numerous tables</u> using <u>TAP</u> or <u>form-based ADQL</u>.

site help

Services Available

By Title	By Subject	By Author									
► 1WHSP blazar candidates catalog i Q											
► BdHNe i Q											
► Magic Public Spectra Web Interface i Q											
► SDSS-DR10 white dwarfs catalog i Q											
► UHECR i Q											
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vo.bsdc.icranet.org







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Activities of the BSDC



Since early 2017, motivated by the Open Universe Initiative, we are building a full-scale online data platform. Activities are starting from research-critical topics.

- VHE Legacy Database, in collaboration with VERITAS (and now HESS).
- For the first time, appropriate data formats for the field are being developed, in collaboration with the individual data providers to release their final data products in comprehensive way for the first time.
- ➤ Data is released in VO format (for everyone). The BSDC helps with the release, then provides a platform for integration and adequate / specific tools to interact with the data online.











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- VHE Legacy Database, in collaboration with VERITAS (and now HESS).
- Optical Polarimetry database.
- For the first time, an effort to systematically release VO data products in the field and integrate data from multiple optical polarisation providers (usually medium-size observatories or networks) is being undertaken.
- >BSDC helps with data standards definition, data release with the VO, and the creation of the first dedicated interface for optical polarimetry (under construction)

The prototype BSDC Interface





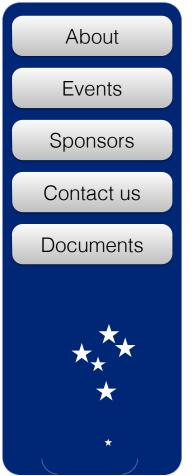
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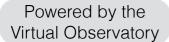


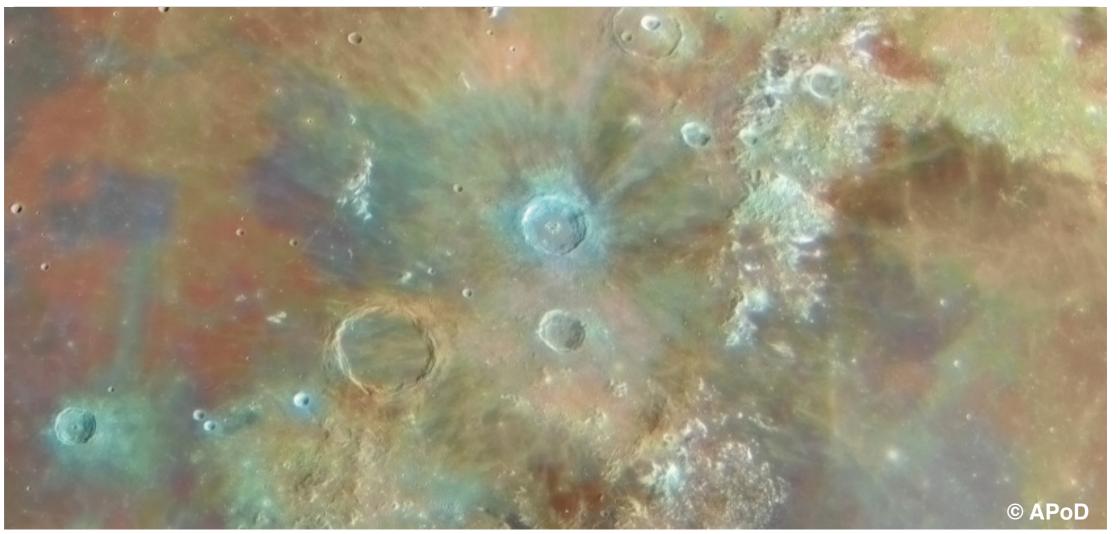


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The BSDC is managed by the Brazilian Center for Research in Physics (CBPF). We would appreciate that the use of BSDC for research be acknowledged in your publications.











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- VHE Legacy Database, in collaboration with VERITAS (and now HESS).
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- Activities involving new data (Resurfacing) and increased usability (Transparency) necessarily require the development of new tools with the potential to contribute to, and enhance the VO experience.







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Release of the tools and interface is expected for the end of the year.









Thank you very much!

ulisses@cbpf.br

The BSDC Team:

Bruno Arsioli, UNICAMP Ulisses Barres, CBPF Benno Bodmann, BSDC Carlos Brandt, USapienza Bernardo Fraga, CBPF Paolo Giommi, ASI Marko Petek, BSDC Damiano Verzulli, ICRANet arXiv:1702.06828v1 22 Feb 2017

The Brazilian Science Data Center (BSDC)

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Astrophysics and Space Science are becoming increasingly characterised by what is now known as "big data", the bottlenecks for progress partly shifting from data acquisition to "data mining". Truth is that the amount and rate of data accumulation in many fields already surpasses the local capabilities for its processing and exploitation, and the efficient conversion of scientific data into knowledge is everywhere a challenge. The result is that, to a large extent, isolated data archives risk being progressively likened to "data