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<b>Title</b>	VizieR Online Data Catalog: W49B with H.E.S.S. and Fermi-LAT (HESS+, 2018)
<b>Authors</b>	H. E. S. S. Collaboration, Abdalla, H., Abramowski, A., Aharonian, F., Ait Benkhali, F., Akhperjanian, A. G., Andersson, T., Anguner, E. O., Arrieta, M., Aubert, P., Backes, M., Balzer, A., Barnard, M., Becherini, Y., Becker Tjus, J., Berge, D., Bernhard, S., Bernlohr, K., Blackwell, R., Bottcher, M., Boisson, C., Bolmont, J., Bordas, P., Bregeon, J., Brun, F., Brun, P., Bryan, M., Bulik, T., Capasso, M., Carr, J., Casanova, S., Cerruti, M., Chakraborty, N., Chalme-Calvet, R., Chaves, R. C. G., Chen, A., Chevalier, J., Chretien, M., Colafrancesco, S., Cologna, G., Condon, B., Conrad, J., Cui, Y., Davids, I. D., Decock, J., Degrange, B., Deil, C., Devin, J., Dewilt, P., Dirson, L., Djannati-Atai, A., Domainko, W., Donath, A., Drury, L. O'c., Dubus, G., Dutson, K., Dyks, J., Edwards, T., Egberts, K., Eger, P., Ernenwein, J. -P., Eschbach, S., Farnier, C., Fegan, S., Fernandes M. V., Fiasson, A., Fontaine, G., Foerster, A., Funk, S., Fuessling, M., Gabici, S., Gajdus, M., Gallant, Y. A., Garrigoux, T., Giavitto, G., Giebels, B., Glicenstein, J. F., Gottschall, D., Goyal, A., Grondin, M. -H., Hadasch, D., Hahn, J., Haupt, M., Hawkes, J., Heinzlmann, G., Henri, G., Hermann, G., Hervet, O., Hinton, J. A., Hofmann, W., Hoischen, C., Holler, M., Horns, D., Ivascenko, A., Jacholkowska, A., Jamrozy, M., Janiak, M., Jankowsky, D., Jankowsky, F., Jingo, M., Jogler, T., Jouvin, L., Jung-Richardt, I., Kastendieck, M. A., Katarzynski, K., Katz, U., Kerszberg, D., Khelifi, B., Kieffer, M., King, J., Klepser, S., Klochkov, D., Kluzniak, W., Kolitzus, D., Komin, Nu., Kosack, K., Krakau, S., Kraus, M., Krayzel, F., Krueger, P. P., Laffon, H., Lamanna, G., Lau, J., Lees, J. -P., Lefaucheur, J., Lefranc, V., Lemièrre, A., Lemoine-Goumard, M., Lenain, J. -P., Leser, E., Lohse, T., Lorentz, M., Liu, R., Lopez-Coto, R., Lypova, I., Marandon, V., Marcowith, A., Mariaud, C., Marx, R., Maurin, G., Maxted, N., Mayer, M., Meintjes, P. J., Meyer, M., Mitchell, A. M. W., Moderski, R., Mohamed, M., Mohrmann, L., Mora, K., Moulin, E., Murach, T., de Naurois, M., Niederwanger, F., Niemiec, J., Oakes, L., O'Brien, P., Odaka, H., Oetl, S., Ohm, S., Ostrowski, M., Oya, I., Padovani, Marco, Panter, M., Parsons, R. D., Pekeur, N. W., Pelletier, G., Perennes, C., Petrucci, P. -O., Peyaud, B., Piel, Q., Pita, S., Poon, H., Prokhorov, D., Prokoph, H., Puehlhofer, G., Punch, M., Quirrenbach, A., Raab, S., Reimer, A., Reimer, O., Renaud, M., de Los Reyes, R., Rieger, F., Romoli, C., Rosier-Lees, S., Rowell, G., Rudak, B., Rulten, C. B., Sahakian, V., Salek, D., Sanchez, D. A., Santangelo, A., Sasaki, M., Schlickeiser, R., Schuessler, F., Schulz, A., Schwanke, U., Schwemmer, S., Settimo, M., Seyffert, A. S., Shafi, N., Shilon, I., Simoni, R., Sol, H., Spanier, F., Spengler, G., Spies, F., Stawarz, L., Steenkamp, R., Stegmann, C., Stinzing, F., Stycz, K., Sushch, I., Tavernet, J. -P., Tavernier, T., Taylor, A. M., Terrier, R., Tibaldo, L., Tiziani, D., Tluczykont, M., Trichard, C., Tuffs, R., Uchiyama, Y., van der, Walt D. J., van Eldik, C., van Rensburg, C., van Soelen, B., Vasileiadis, G., Veh, J., Venter, C., Viana, A., Vincent, P., Vink, J.,



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J/A+A/612/A5

W49B with H.E.S.S. and Fermi-LAT

(HESS+, 2018)

The supernova remnant W49B as seen with H.E.S.S. and Fermi-LAT.  
 H.E.S.S. Collaboration, Abdalla H., Abramowski A., Aharonian F.,  
 Ait Benkhali F., Akhperjanian A.G., Andersson T., Anguner E.O., Arrieta M.,  
 Aubert P., Backes M., Balzer A., Barnard M., Becherini Y., Becker Tjus J.,  
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 van der Walt D.J., van Eldik C., van Rensburg C., van Soelen B.,  
 Vasileiadis G., Veh J., Venter C., Viana A., Vincent P., Vink J.,  
 Voisin F., Voelk H.J., Vuillaume T., Wadiasingh Z., Wagner S.J.,  
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 Fermi-LAT Collaboration, Katsuta J.  
 <Astron. Astrophys. 612, A5 (2018)>  
 =2018A&A...612A...5H (SIMBAD/NED BibCode)

**ADC\_Keywords:** Gamma rays - Supernova remnants - Molecular clouds

**Keywords:** gamma-rays: general - ISM: supernova remnants - ISM: clouds

#### Abstract:

The supernova remnant (SNR) W49B originated from a core-collapse supernova that occurred between one and four thousand years ago, and subsequently evolved into a mixed-morphology remnant, which is interacting with molecular clouds (MC). Gamma-ray observations of SNR-MC associations are a powerful tool to constrain the origin of Galactic cosmic rays, as they can probe the acceleration of hadrons through their interaction with the surrounding medium and subsequent emission of non-thermal photons. We report the detection of a gamma-ray source coincident with W49B at very high energies (VHE;  $E > 100$  GeV) with the H.E.S.S. Cherenkov telescopes together with a study of the source with five years of Fermi-LAT high-energy gamma-ray (0.06–300 GeV) data. The smoothly connected, combined source spectrum, measured from 60 MeV to multi-TeV energies, shows two significant spectral breaks at  $304 \pm 20$  MeV and  $8.4_{-2.5}^{+2.2}$  GeV; the latter is constrained by the joint fit from the two instruments. The detected spectral features are similar to those observed in several other SNR-MC associations and are found to be indicative of gamma-ray emission produced through neutral-pion decay.

#### Description:

File hessmap.fit contains the gamma-ray excess map obtained with H.E.S.S. in the direction of the supernova remnant W49B.

#### Objects:

RA	(2000)	DE	Designation(s)
19 11 7.3		+09 05 37.0	HESS J1911+090 = W49B

#### File Summary:

FileName	Recl	Records	Explanations
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ReadMe	80	.	This file
<a href="#">list.dat</a>	135	1	Information on fits image
hessmap.fit	2880	19	FITS image

**See also:**

[J/A+A/612/A1](#) : H.E.S.S. Galactic Plane Survey (HESS+, 2018)  
[J/A+A/612/A6](#) : RX J1713.7-3946 HESS spectrum (HESS+, 2018)  
[J/A+A/612/A7](#) : Vela Junior (RX J0852.0-4622) HESS image (HESS+, 2018)

**Byte-by-byte Description of file:** [list.dat](#)

Bytes	Format	Units	Label	Explanations
1	A1	---	---	[G]
2- 10	F9.5	<a href="#">deg</a>	GLON	Galactic longitude of center
11- 19	F9.5	<a href="#">deg</a>	GLAT	Galactic latitude of center (J2000)
21- 23	I3	---	Nx	Number of pixels along X-axis
25- 27	I3	---	Ny	Number of pixels along Y-axis
29- 30	I2	<a href="#">Kibyte</a>	size	Size of FITS file
32- 42	A11	---	FileName	Name of FITS file
44-135	A92	---	Title	Title of the FITS file

**Acknowledgements:**

HESS collaboration, [contact.hess\(at\)hess-experiment.eu](mailto:contact.hess(at)hess-experiment.eu)

**References**

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HESS collaboration, Paper II [2018A&A...612A...2H](#)  
HESS collaboration, Paper III [2018A&A...612A...3H](#)  
HESS collaboration, Paper IV [2018A&A...612A...4H](#)  
HESS collaboration, Paper V [2018A&A...612A...5H](#), Cat. [J/A+A/612/A5](#)  
HESS collaboration, Paper VI [2018A&A...612A...6H](#), Cat. [J/A+A/612/A6](#)  
HESS collaboration, Paper VII [2018A&A...612A...7H](#), Cat. [J/A+A/612/A7](#)  
HESS collaboration, Paper VIII [2018A&A...612A...8H](#)  
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HESS collaboration, Paper XI [2018A&A...612A...11H](#)  
HESS collaboration, Paper XII [2018A&A...612A...12H](#)  
HESS collaboration, Paper XIII [2018A&A...612A...13H](#)  
MAGIC collaboration, Paper XIV [2018A&A...612A...14M](#)

**(End)** Francois Brun [HESS], Patricia Vannier [CDS] 07-Oct-2016

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