



INTERACTION BETWEEN SUPERNOVA REMNANT AND MOLECULAR CLOUD AROUND W28 (G6.4-0.1)

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8 *September* 2009
Palavas-les-Flots

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- 3 Conclusion

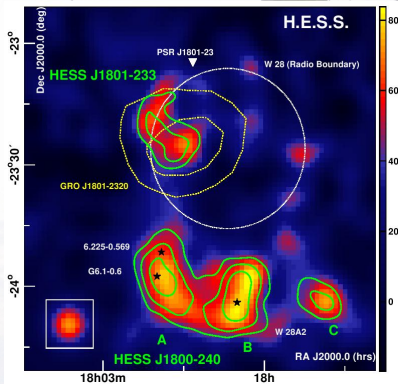
Reminder about W28 field of view

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- Hillas Analysis excess map
~ 42h observed ;
- White circle: W28 radio boundary ;
- Yellow contours: EGRET source ;
- Green contours: significance levels 4, 5, 6 σ ;
- Black stars: HII regions ;
- 4 regions in the field of view.

*Hillas analysis excess map
from W28 HESS paper (2008).*

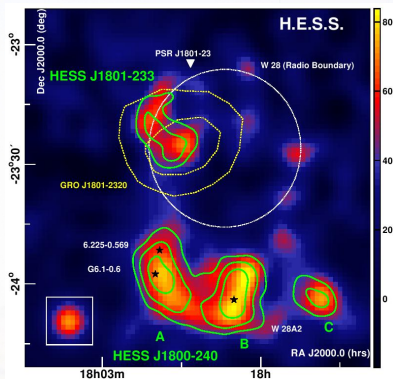
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<i>Name</i>	<i>source size [deg]</i>	<i>significance [σ]</i>
HESS J1801-233	0.17	7.9
HESS J1800-240A	0.15	6.0
HESS J1800-240B	0.15	7.8
HESS J1800-240C	0.02	4.5

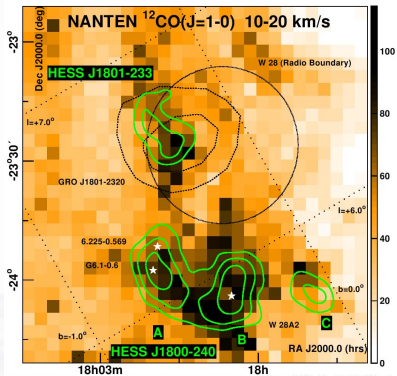
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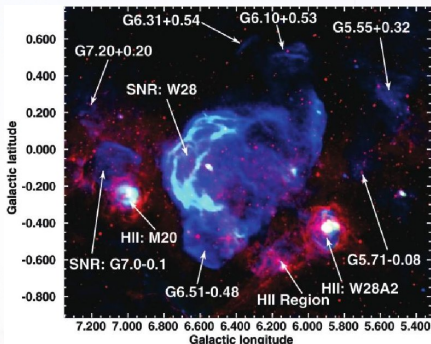


- NANTEN ^{12}CO image of W28 ;
- Same informations on map as before ;
- CO excesses in coincidence with :
 - ▶ Hill regions;
 - ▶ W 28 ;
 - ▶ Region C.

NANTEN ^{12}CO image of the W28 region for $V_{\text{LSR}} = 10 - 20 \text{ km.s}^{-1}$. (HESS 2008)

Region labelled C in coincidence with G5.71-0.08 Brogan et al. (2006) and OH maser Hewitt & Yusef-Zadeh (2009).

Search for candidate in G5.71-0.08



*Field of view around W28. Radio waves from VLA (blue) and IR from MSX (red).
(Brogan et al. 2006)*

- Lots of SNRs near W28 ;
- OH Maser detected for:
 - ▶ SNR G5.71-0.08 *Hewitt & Yusef-Zadeh (2009)* ;
 - ▶ SNR G5.71-0.08 not well known (pulsar, distance, age...).

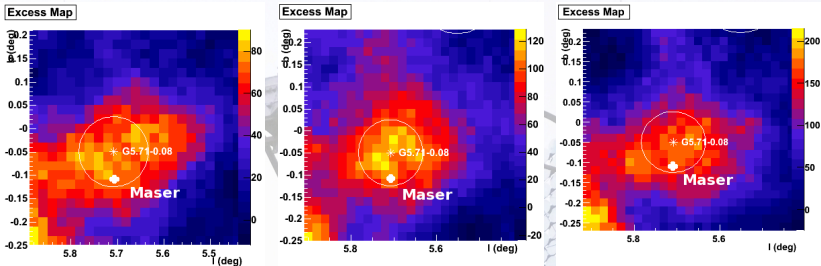
Analyses comparison - *Preliminary*

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Xeff analysis: 5σ

Triple analysis: 6.1σ

Model++: 7.5σ

- Remind: 4.5σ in HESS paper ;
- Use of 48h observation ;
- OH maser possible distances: 3.1 or 13.7 kpc (12 km.s^{-1});
- Maser position: 5.704-0.12 ;
- ⇒ Compatible with SNR G5.71 in all analyses ;
- Gamma emission from SNR G5.71-0.08 confirmed.

Gamma origin: hadronic or leptonic?

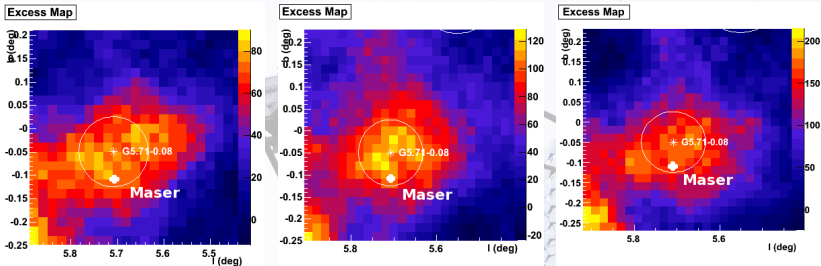
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- Analysis with 3 methods \Rightarrow SNR G5.71-0.08 confirmed ;
 - Flux: 1% Crab ;
 - What unknown:
 - ▶ SNR Distance ;
 - ▶ Age ;
 - ▶ No pulsar detected.
 - Gamma emission from HESS ;
 - CO emission from NANTEN ;
 - Now OH Maser detected from VLA ;
- \Rightarrow SNR and molecular cloud in interaction.

Next steps

- Spectrum calculations ;
- Spectrum to find π° decay characteristics or not.

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