

WESTERN SYDNEY
UNIVERSITY



RADIO OBSERVATIONS OF GALACTIC PEVATRONS



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Prof. Miroslav D. Filipovic (Western Sydney University)

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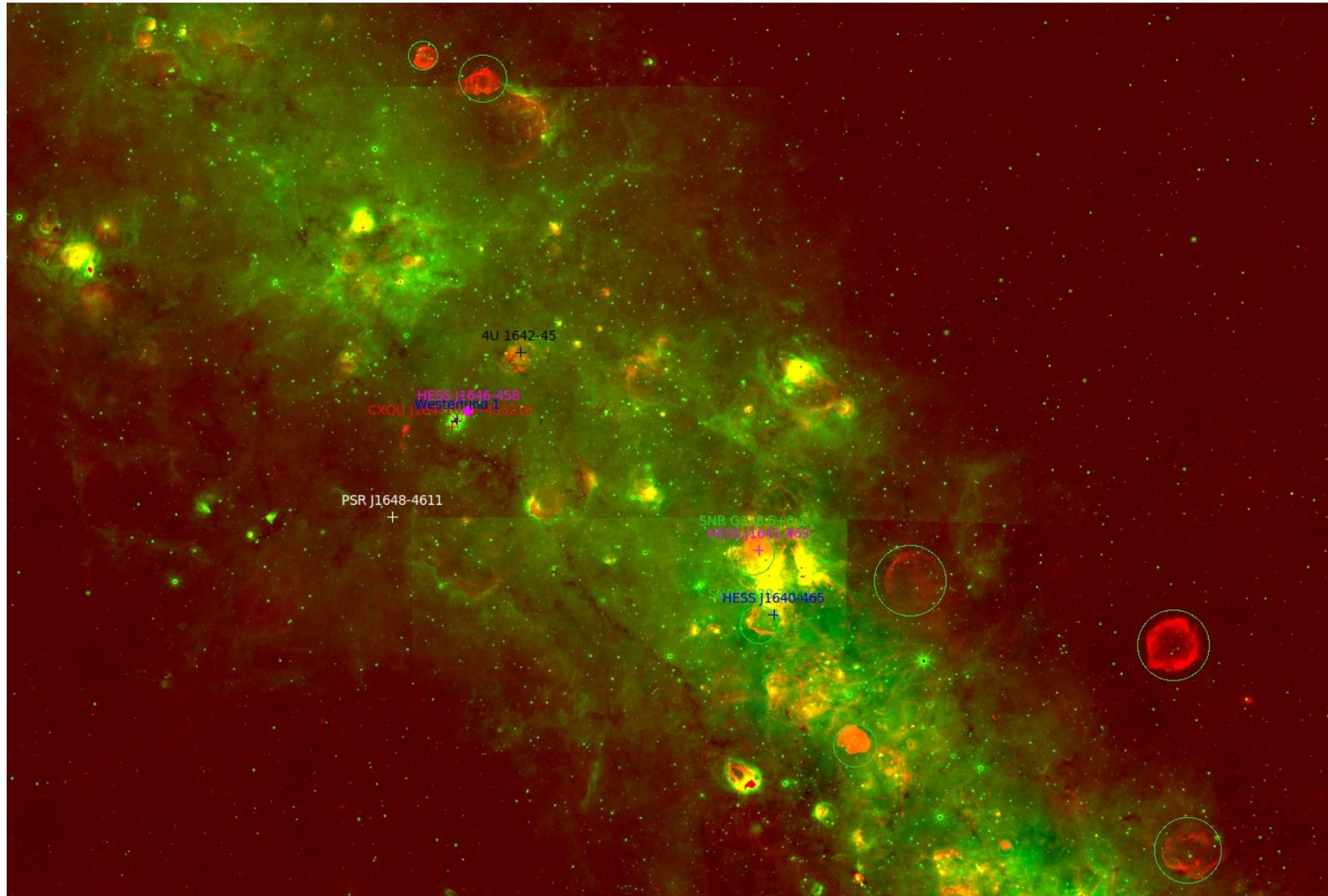
Dr Sabrina Einecke (University of Adelaide)

Prof. Manami Sasaki (Dr. Karl Remeis-Observatory Bamberg)

CTA-Oz Meeting

13 April 2022, Adelaide

- **ARC DP *The Dawn of Extreme Gamma-Ray Astronomy***
 - aims to reveal the highest energy cosmic-ray particles in our galaxy
 - charged protons and nuclei with energies reaching 1 to about 100 PeV (pevatrons)
 - pevatron candidates:
 - * HESS J1641-463
 - * HESS J1646-458
 - * HESS J1702-420
 - * HESS J1741-302
 - * HESS J1826-130
 - my contribution: study pevatrons in radio continuum
- **search for new Galactic SNRs**
 - + remeasure *position and extension* of known SNRs



r - ASKAP

g - WISE

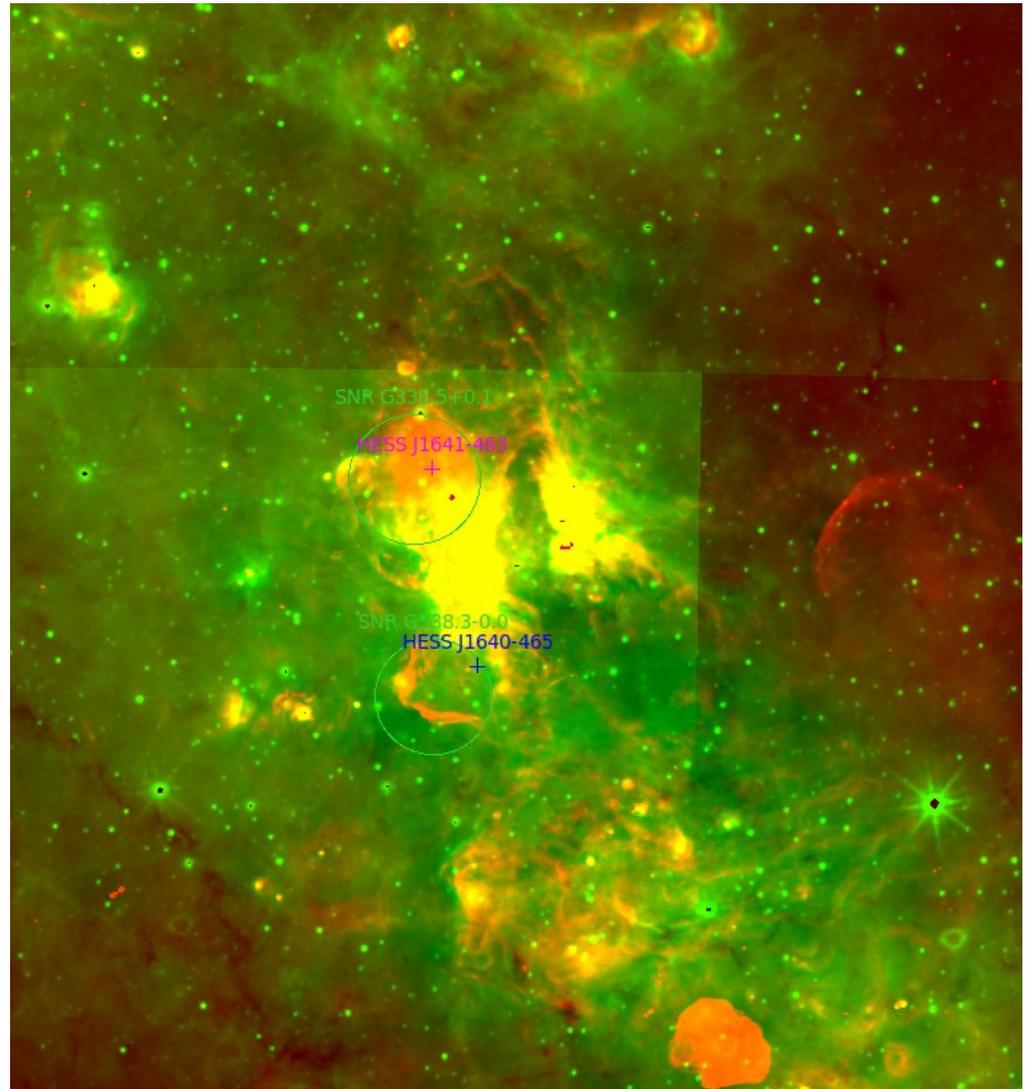
b - H.E.S.S.

HESS J1641-463

- most promising candidate
- point-like source
- remarkably hard spectrum with $\alpha = 2.07$ (Abramowski et al, 2014)

Counterparts:

- HESS J1640-465
- SNRs
 - G338.5+0.1
 - G338.3-0.0
- no X-ray

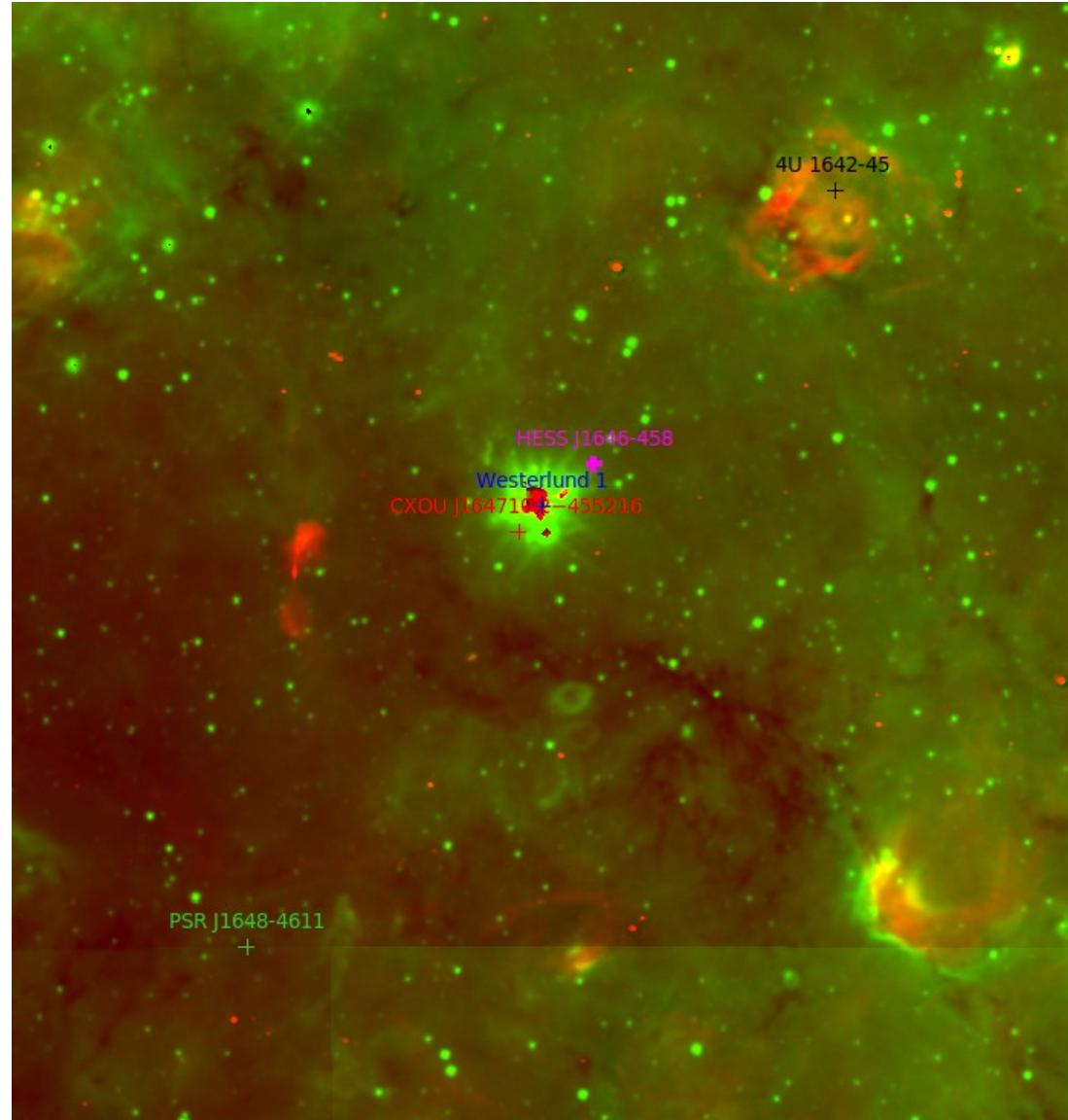


HESS J1646-458

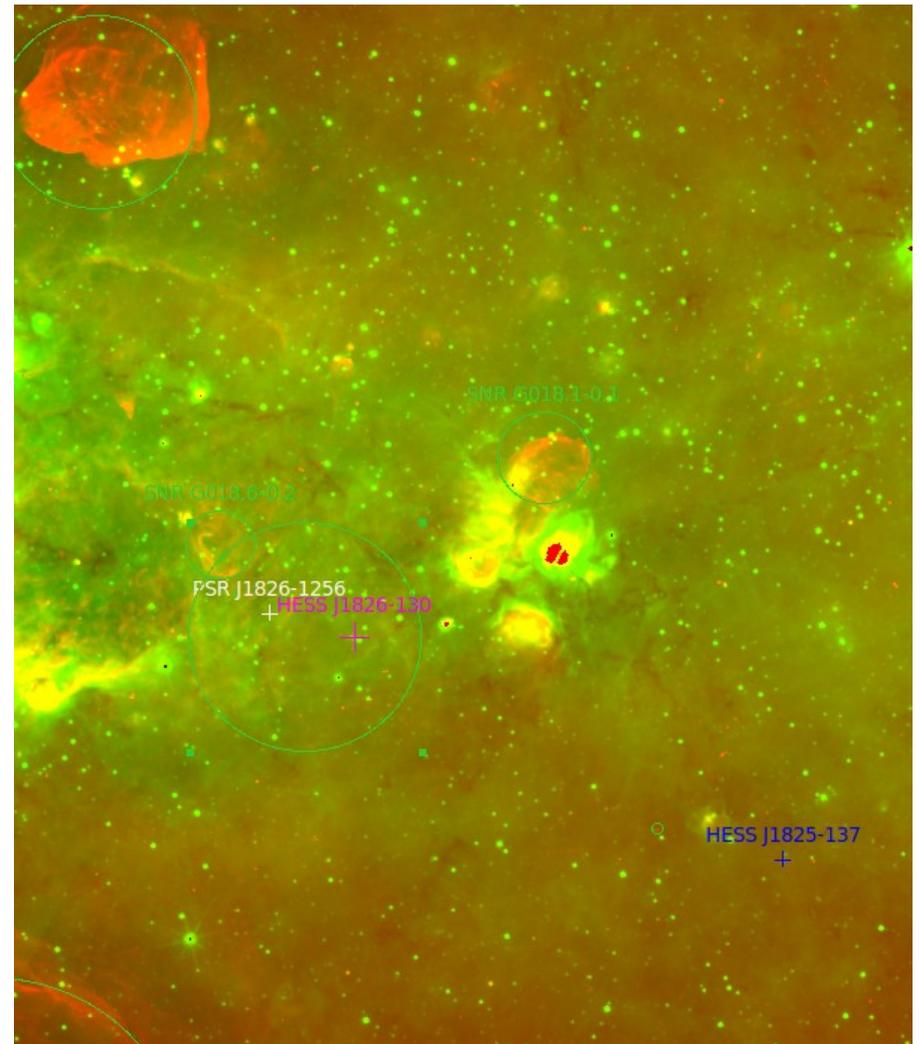
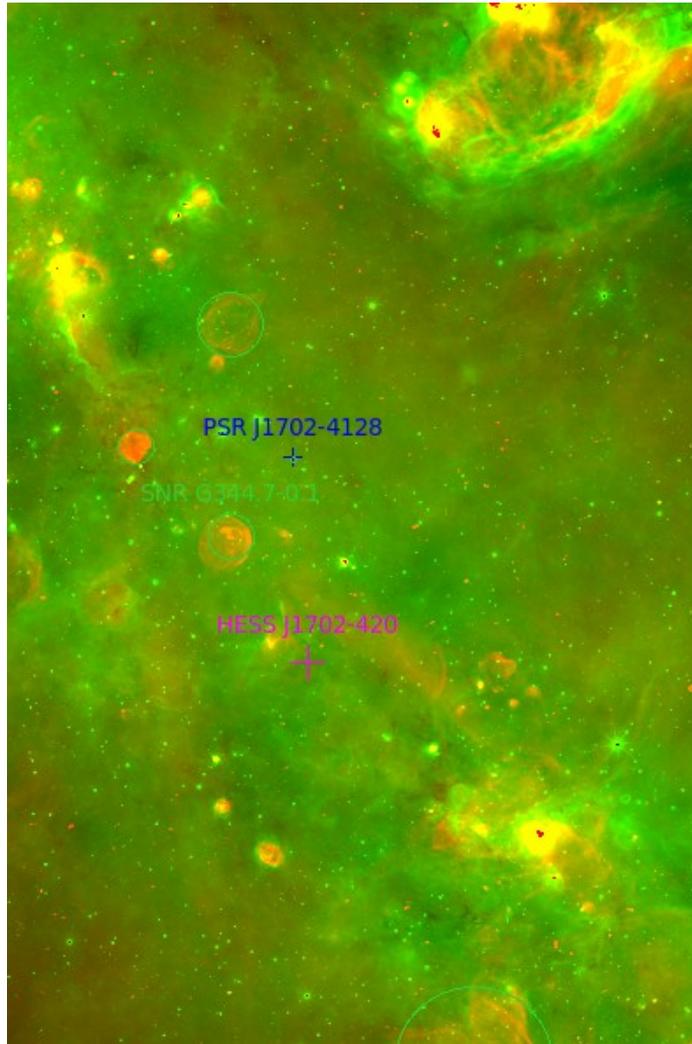
- the largest TeV gamma ray source, 2°
- relatively hard spectrum with $\alpha = 2.19$
(Abramowski et al, 2012)

Counterparts:

- Westerlund 1
- magnetar
CXOU J164710.2-455216
- X-ray binary 4U 1642-45
- pulsar PSR J1648-4611



HESS J1702-420 & HESS J1826-130





THANK YOU FOR YOUR
ATTENTION!
