

<http://pulsar.sternwarte.uni-erlangen.de/tanami>

TANAMI: Tracking Active Galactic Nuclei with Austral Milliarcsecond Interferometry

The very-long-baseline interferometry (VLBI) program TANAMI provides bi-monthly, $\lambda 3.6\text{cm}$ and $\lambda 1.3\text{cm}$ observations of extragalactic jets at parsec scales south of -30° declination using the Australian Long Baseline Array (LBA) and additional radio telescopes in Antarctica, Chile, New Zealand and South Africa (R. Ojha et al., A&A 519, A45, (2010)). Supporting programs provide coverage of the sources of the TANAMI sample detected by Fermi/LAT to construct simultaneous broadband spectral energy distributions (SED) and rapid follow-ups of high energy flares. We aim to study the radio- γ -ray connection in active galactic nuclei (AGN) monitoring simultaneously their pc-scale structure and broadband emission to distinguish between the proposed emission models. Here we provide an overview of the program.

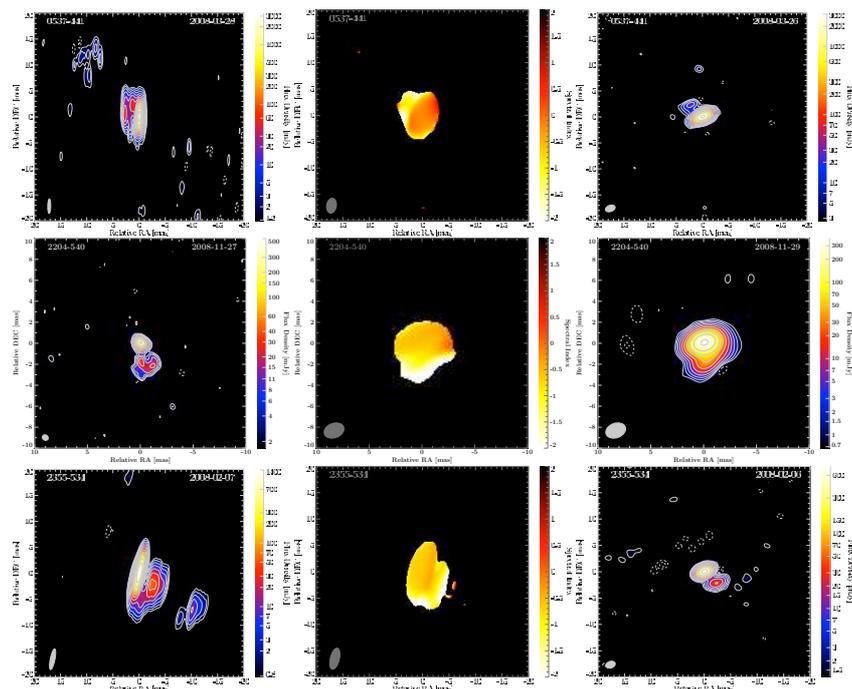
The TANAMI array

The array spans over Australia, Chile, Antarctica and South Africa. New telescopes at Yarragadee (Western Australia), Katherine (Northern Territory, Aus.) and Warkworth (Auckland, New Zealand) are nearing completion.



Selected images

Selection of simultaneous dual-frequency images (left: 8.4 GHz; right: 22 GHz) and their spectral index maps (middle, selection for fluxes above the $3\text{-}\sigma$ noise level and a common restoring beam). The results do not include core-shift correction and are preliminary (taken from Müller et al., Fermi & Jansky Proc., eConf C11110, 2012).



Collaborators

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The sample

The project started in 2007 with 43 sources, and new sources from the 1FGL-catalogue (A. Abdo et al., ApJ 188, 405 (2010)) from the Fermi/LAT are being added at present. The actual sample contains **75 objects**. Criteria are:

- 1) Flat spectrum sources with $S_{5\text{GHz}} > 2 \text{ Jy}$
- 2) Known γ -ray blazars
- 3) Typical sources of a class (IDV, GPS sources, radio galaxies)

TANAMI-related programs

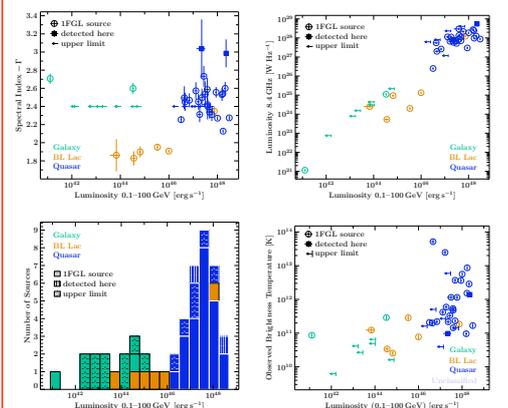
ATCA observations (PI S. Tingay) at 4.8/8.6, 17/19, 35/40 GHz, 15 min per source per frequency per 24-hr session, 8 epochs a year, since October 2007 – target of all 33 CGRO/EGRET declinations south of $\delta = -30^\circ$.

Ceduna 30-m at 6.7 GHz (J. Lovell (PI) & J. Blanchard), 48-hr sessions every two weeks, 1 hr per source per epoch since August 2007 – Fermi/IDV targets matching LBA monitoring list

CHI (Ceduna-Hobart interferometer) 26-m to 30-m dishes interferometer with 1700 km baseline for followup of Fermi detections, response time of 20 minutes, disks lent by NASA

Optical observations by the Rapid Eye Mount (INAF) telescope to provide spectra and redshifts

Gamma-ray properties of TANAMI sources



Acknowledgments

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