

[**7GC-18**] Detection of AGN outflows in micro-arcsec scales

Junghwan Oh¹, Sascha Trippe¹, Thomas Krichbaum², Bong won Sohn³, Michael Bremer⁴

¹*Seoul National University, Korea*

²*MPIfR, Bonn*

³*KASI*

⁴*IRAM, Grenoble*

We report the preliminary results of our GMVA(Global mm VLBI Array) observation at the frequency of 86 GHz. Observation were made in the dual polarization mode (LCP and RCP), to produce the polarimetric maps with the maximum angular resolution which the array is capable of. We aim to link the source-integrated AGN polarization properties with the polarized spatial source structure, by mapping the polarized "fine structure" of the target AGN. We selected 2 targets, 0954+658 and 0716+714, which (1) have been observed multiple times by the PdBI polarimetric monitoring program; (2) have sufficient integrated fluxes ($S_{90\text{GHz}} > 1 \text{ Jy}$) ; (3) are close enough to resolve the source structure $< 1 \text{ pc}$ with given angular resolution ; and (4) are located at high northern declination for good UV coverages. As preliminary results, we present LL and RR polarized images of each target with the maximum angular resolution of $\sim 60 \mu\text{s}$. Extended structures, probably the jet outflows, are discovered in both sources.

[**7GC-19**] Search for Very Fast Variability in AGN Radio Light Curves

Taeseok Lee¹, Sascha Trippe¹, Bong Won Sohn², Sang-Sung Lee²,
Do-Young Byun², Junghwan Oh¹

¹*Seoul National University,* ²*Korea Astronomy and Space Science Institute*

AGN are known for irregular variability on all time scales, down to intra-day variability with relative variations of a few percent within minutes to hours. In the shortest time scale of AGN activity, unexplored territory still exists: first, the existence of a shortest time scale of AGN activity and secondly the shape of high frequency end of AGN power spectrum. Also the spectral variations at the shortest timescale.

Here, we present the preliminary results of AGN fast photometry performed with Korean VLBI Network(KVN). Observations were done in a 'anti-correlated' mode using two antennas, with always either one antenna pointing at the target. This results in an effective time resolution of 3 minutes. We used all four KVN frequencies, 22, 43, 86, and 129 GHz, in order to trace spectral variability. We have been able to derive high-quality light curves for 3C111 and 3C279 at 22 and 86 GHz observed on 31st of May and 30th of Nov. in 2012. We are currently performing detailed statistical analysis in order to assess the levels of variability or the corresponding upper limits.