

**R02c          Search for Time Lag of Sgr A\* IDV with KVN**

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Sagittarius A\* (Sgr A\*) is a compact source with emissions from radio to X-ray, and it is associated with the Galactic center black hole (GCBH). The temporal flux variations of Sgr A\* were reported from the observations at many wavelengths, and especially the intra-day variability (IDV) was detected in the mm- and submm-wavelengths. The time lags between the IDV flare peaks at 22 and 43 GHz have been reported by VLA, and they suggested that the flare emissions come from adiabatically expanding plasma blobs ejected close to the GCBH (Yusef-Zadeh et al. 2006). However such significant time lag could not be found in the search for the time lag between light curves at 90 and 102 GHz with the Nobeyama Millimeter Array (Miyazaki et al. 2013).

In order to search for the time lag of Sgr A\* IDV flare, we are performing observations of Sgr A\* in the 22, 43, 86, and 129 GHz bands using the Korean VLBI Network (KVN) from the winter of 2013. Because the receiver system of KVN can observe Sgr A\* at these multi-frequencies simultaneously, the KVN is very useful to detect the time lag of Sgr A\* flare. In some KVN observations, the moderate intra-day flux variation about 20-30% were probably detected, but time lag between the IDVs at the observed bands was not clear. We would like to report the recent result of the KVN observations.