

EATING VLBI and KVN-Yebes observations of AGN jets

B. W. Sohn, G. Giovannini, M. Giroletti, M. Kino, K. Hada, S. Koyama, M. Orienti, M. Honma, H. Nagai, T. Oyama, R. Lico, S. Oh, G. Zhao, P. Cassaro, A. Orfei, M. Stagnari, T. H. Jung, H. Ro, J. Kim, M., P. Vincente, Rioja, R. Dodson,

Firstly, we introduce EATING VLBI, East Asia To Italy: Nearly Global VLBI, we have the opportunity to perform observations using the Italian VLBI telescopes together with the KVN and VERA arrays (KaVA). An important point of this project is the high resolution observation of AGN using KaVA and the Italian telescopes together, i.e. Nearly Global VLBI. The addition of the Italian telescopes is necessary to increase the angular resolution to obtain detailed images. In this proposal we request two epoch observations of three AGNs with a strong interest by the Korean, Italian and Japanese research groups: 3C 84, Mrk 501 and TXS 0506+056. These powerful sources are characterized by the presence of resolved jets with a limb-brightened structure. The origin of this structure it is not yet clear and present models suggest a possible connection with the Gamma-ray emission detected from AGN. To increase the knowledge on these sources and jet physics, we are asking two epochs of joint observations at 22 GHz with the KaVA and VLBIT array.

Secondly, we present KVN+Yebes SFPR observation (Rioja et al. 2015) of FSRQ 1633+382 in order to probe core position change of the source. We have monitored FSRQ (OVV) 1633+382 with VLBA + Eelsberg (2002-2005) at 22, 43 and 86 GHz and KaVA (2014-2017) at 22 and 43 GHz for sensitive imaging of its jet structure. Along with the rich structural evolution of the jet which will be reported separately, we found two intriguing 'stable' components along the jet. Those two 'stable' components of FSRQ 1633+382 have unusual features which we can not easily associate with the standing shock explanation. In order to narrow down the possible answers, we propose SFPR KVN+Yebes astrometric observation. SFPR astrometry capability of KVN & Yebes is essential to probe or to distinguish between physical position change and frequency-shift of the core.