27 by adopting the Source Frequency Phase Referencing (SFPR) method. In addition we detected 129.3 Ghz SiO maser at second epoch. These results make it possible to determine the accurate position of central star as a dynamical center of 22.2 GHz H2O maser and relative locations of 43.1, 42.8, 86.2, 129.3 GHz SiO masers. In addition, it is possible to investigate the morphological and kinematic variations of clumpy structures from SiO maser to H2O maser regions in future together with the development of asymmetric structure of H2O maser region.

[구 KVN-05] The recent activities for a precise astrometry using SFPR with KVN

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Thanks to the quasi-optics system of KVN, the relative astrometry at different frequencies can be effectively achieved. In this talk, as a part of the KVN special session, we are going to present an important method making it possible, so called the source frequency phase referencing (SFPR).

Based on the background, we will show our recent activities using the SFPR for the Galactic Center (Sgr A*) study, from its advantages on astrometric studies to the remained issues.

[구 KVN-06] Measurement of proper motion and annual parallax with maser emission

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We present the results of astrometric observations using water masers around a semi-regular variable star R Crt. The observations were carried out for two years with the Korean VLBI Network (KVN). The absolute positions of the water masers from R Crt are successfully obtained at 10 epochs in total. By tracking the positions of the water maser emission, we directly measured the annual parallax and distance of R Crt. The measured distance to R Crt enables us to estimate the actual 3D velocity of water masers around R Crt. Our research suggests the possibility of performing astrometric studies with the KVN. As a next step, we are going to enhance the astrometric accuracy by observing SiO masers.