



Broadband geodetic VLBI system and its application to optical clock comparison

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For application of intercontinental time and frequency comparison, NICT has developed a broadband VLBI system named GALA-V, which is capable to observe 3-14 GHz radio frequency range. Enhancement of sensitivity by large bandwidth enabled a small diameter transportable telescope to be used as a node of VLBI station to compare the atomic clocks. We performed a frequency comparison of lattice clocks in Tokyo and Torino for the first time by using the broadband VLBI system. Two portable antennas with 2.4 m diameters were installed at NICT Koganei headquarters and INAF (Medicina, Italy), realizing a VLBI network together with Kashima large-aperture antenna of 34 m diameter. The clock signal at INAF was evaluated by INRiM using an optical fiber link between Medicina and Torino. This experiment is demonstrating the potential of VLBI for intercontinental frequency transfer.