

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)  
Space-Based Navigation Systems and Services (4)

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A POSSIBLE SPACE VLBI CONSTELLATION NAVIGATION SYSTEM UTILIZING THE STABLE  
ORBITS AROUND THE TLPS IN THE EARTH-MOON SYSTEM.**Abstract**

Our current studies indicate that there are stable orbits around but far away from the triangular libration points. Two special quasi-periodic orbits around each triangular libration points L4, L5 in the Earth-Moon system perturbed by Sun are gain, and the stable orbits discussed in this work are ideal places for space colonies because no orbit control is needed. These stable orbits can also be used as nominal orbits for space VLBI (Very Long Baseline Interferometry) stations. The two stations can also form baselines with stations on the Earth and the Moon, or with stations located around another TLP. Due to the long distance between the stations, the observation precision can be greatly enhanced compared with the VLBI stations on the Earth. Such a VLBI constellation not only can advance the radio astronomy, but also can be used as a navigation system for human activities in the Earth-Moon system and even in the solar system. This paper will focus on the navigation constellation coverage issues, and the orbit determination accuracy problems within the Earth-Moon system and interplanetary space.