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VISUAL LOCALIZATION OF THE “JADE RABBIT” ROVER IN CHANG’E-3 LUNAR PROBE
MISSION

Abstract

China’s Chang’e-3 probe, which includes its first lunar rover named Yutu or Jade Rabbit, successfully landed on the moon in December 14, 2013. So far, the Jade Rabbit has traveled about 114.82 meters on the surface of the moon. During the travel, the Jade Rabbit needs to approach and reach the scientific targets specified by scientists, where the rover navigation and positioning is the foundation. Positioning accuracies affect the success of scientific exploration. Currently, two-dimensional positioning accuracy of same-beam interferometric measurement is approximately 100 meters, which is far from meeting the requirements of rover’s path planning. In addition, the rover’s inertial navigation system can also locate the rover with an accuracy of 10