

On the Navigation of the Lunar Probe with the Starlight Angle Obs.

*Erhu WEI¹

1. School of Geodesy and Geomatics, Wuhan University

Celestial navigation is a method of autonomous navigation without relying on the remote control of ground stations. In this article, first, the observation equation of celestial navigation of the lunar probe based on observations of the starlight angle is established. Next, a systematic state equation is established according to motion model of the lunar probe, then the model of celestial navigation by extending the method achieved by Kalman filtering. At last, a transfer orbit of the lunar probe from the Earth to the Moon is simulated and the simulation result is analyzed.

Keywords: celestial navigation, starlight angle, lunar probe, Kalman filtering