

1164-65-113

Yuri Shimane* (yshimane3@gatech.edu), 251 10th Street NW, THB204B, Atlanta, GA 30318, and **Koki Ho** (kokiho@gatech.edu), North Avenue, ESM 205, Atlanta, GA 30332. *Cislunar Astrodynamics for Space Logistics*.

The Moon has been gaining attention both from public and private sector players around the world. With increasing human and robotic activities in cislunar space, the construction of efficient transfer trajectories is of particular interest, trading-off, among other things, transfer time and fuel cost. Trajectory design to the Moon occurs in a naturally three-body problem, rendering itself a formidable mathematical sandbox paired with practical relevance. Compared to trajectory design in the two-body Keplerian realm, even impulsive trajectories in the three body dynamics pose as nontrivial problem due to the inherent chaotic behavior. We present concurrent research results in cislunar astrodynamics, with emphasis on trajectory design based on periodic solutions and manifold structures in simplified three-body models. We draw its importance in the context of space logistics, a framework for planning and optimizing multiple space missions together as a single logistics problem. (Received January 15, 2021)