



The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on Applied Mathematics

Introduction to Astrodynamics and Spacecraft
Trajectory Design

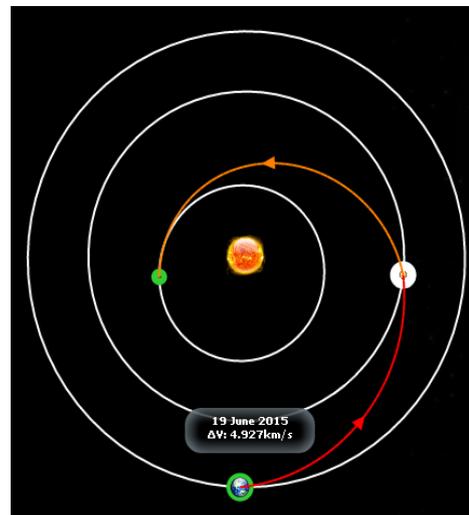
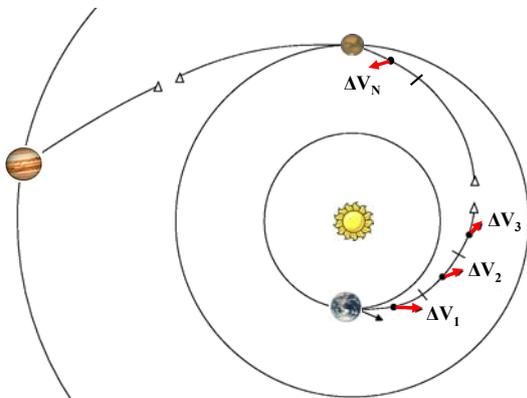
By

Prof. Yam Chit Hong

Research Fellow, Advanced Concepts Team of the European Space Agency

Abstract

A brief overview of the theories and applications of astrodynamics are presented. Topics include the two-body problem, orbital elements, Kepler's equation, the two-point boundary value problem, orbital maneuvers, gravity assists, and optimization of spacecraft trajectories. Examples on the trajectory design of interplanetary missions, such as the Saturn orbiter Cassini, the Jupiter Icy Moons Orbiter JIMO, and the results from the Global Trajectory Optimization Competition, are used to illustrate the applications. The talk is aimed at anyone with a basic mathematics and physics background who is interested learning the dynamics of satellites and its importance in the planning of space missions.



About the Speaker

Yam, Chit Hong, also known as "Hippo", is a researcher in astrodynamics. He received his Bachelor's degree in Civil Engineering from the University of Hong Kong. He earned his Masters and Ph.D. in Aeronautical and Astronautical Engineering from Purdue University in the United States. After his graduation, he joined a multidisciplinary research group at the European Space Agency as a postdoctoral fellow. Some of his research projects include the Cassini end-of-mission studies, nuclear electric propulsion missions to the outer planets, global optimization of low-thrust trajectories, and an online crowdsourcing spaceflight game.

Date: 4 May 2012, Friday

Time: 4:00 p.m.-5:00 p.m.

Venue: Room 4472, Academic Building
(near lifts 25 & 26, HKUST)

All are welcome !