NCU-GISS 國立中央大學太空科學研究所 Graduate Institute of Space Science

演　講

Basilisk – A Modular and Integrated Approach for Spacecraft Dynamics and Autonomy Simulation

Speaker： **Prof. Hanspeter Schaub**
Department of Aerospace Engineering Sciences, University of Colorado, USA

Time： 107 年 3 月 27 日　星期二 14:00

Place： 健雄館(科四館)　S4-917 教室

摘　要 / Abstract：

The Autonomous Vehicle Systems (AVS) Lab and the Laboratory of Atmospheric and Space Physics (LASP) at the University of Colorado are collaborating on an exciting new open-source spacecraft simulation and mission analysis tool called Basilisk. We are jointly using this tool to model both near-Earth and deep-space mission. The Basilisk (BSK) framework is an modular C/C++ based simulation environment that is wrapped with Python to make it scriptable. This allows for dynamics actuators, sensor, and space environment forces to me modeled in an interchangeable manner. The latest efforts even allow for Python BSK modules to be interfaced with C/C++ modules. A message passing interface is employed to flow the data between modular elements. This allows for the latest research results to be integrated into mission analysis simulation tools. A similar approach is used to develop and test flight software algorithms. This seminar highlights on-going Basilisk related research efforts between LASP and the AVS lab, and how this is changing how mission simulations and autonomous software is being developed.

講師簡歷 / Bio：

Dr. Schaub is the Glenn L. Murphy Chair of Engineering at the University of Colorado and is the current graduate chair of the aerospace engineering sciences department. He has about 20 years of research experience, of which 4 years are at Sandia National Laboratories. His research interests are in nonlinear dynamics and control, astrodynamics, relative motion dynamics, as well as relative motion sensing. This has led to about 137 journal and 208 conference publications, as well as a 3rd edition textbook on analytical mechanics of space systems. In the last decade he has developed the emerging field of charged astrodynamics. Dr. Schaub has been the ADCS lead in the CICERO mission and the ADCS algorithm lead on a Mars Mission. He has been awarded the H. Joseph Smead Fellowship, the Provosts Faculty Achievement Award, the faculty assembly award for excellence in teaching, as well as the Outstanding Faculty Advisor Award. He is an AAS Fellow and AIAA Associate Fellow, and has won the AIAA/ASEE Atwood Educator award, as well as the AIAA Mechanics and Control of Flight award. He currently serves as the Editor-In-Chief for the AIAA Journal of Spacecraft and Rockets.

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