

# TP02

## Invited Session II(Aerospace II)

13:30-15:30

Room : Base 1st Floor-Inntal

Chair1 : Yuzo Shimada ( Nihon Univ., Japan )

Chair2 :

13:30 – 14:10

- Invited Talk II
  - Active Control Technology And Restructurable Flight Control System

14:10 – 14:30

TP02-1

### Redesign of the Adaptive Flight Control Law for the ALFLEX Flight Control System

Yuzo Shimada, Kenji Uchiyama(Nihon Univ., JAPAN)

1. Introduction
2. Vehicle Equations of Motion
3. Discrete Model of the Plant with an Unmodeled Dynamics
4. Design of an Adaptive Control
5. Parameter Adjustment Law
6. Numerical Simulations
7. Summary

14:30 – 14:50

TP02-2

### Design of Reconfigurable Flight Controller using Sliding Mode Control - Actuator Fault

dong ho Shin, Youdan Kim(Seoul Nat'l Univ., KOREA)

This paper presents the reconfigurable flight controller in the presence of jammed actuator fault using the adaptive sliding mode control scheme. It is developed under the assumption that the control surface fault cannot be detected and the positions of stuck control surfaces are unknown. It is well known that sliding mode controller shows good performance for the systems with various uncertainties. None-operating stuck actuator makes the system behave like bias which degrades the system performance and sometimes destabilizes the system. Therefore, the bias term generated by actuator faults has to be compensated by the control system. To the objective, we adopt the adaptive sliding mode cont...

14:50 – 15:10

TP02-3

### UAV Autopilot Design under External Disturbances

Youn-Ju Eun, Hyochoong Bang, Min-Jea Tahk(KAIST, KOREA)

Unmanned Aerial Vehicle(UAV) needs autonomous flight capability to accomplish various mission objectives. For this objective, the autopilot is a key element in the UAV system design. The principal goal of autopilot is to guide the aircraft under varying external disturbances throughout the mission phases. The external disturbances include gravity effect, wind gust, and other unexpected obstacles. The gust affects the aircraft flight performance to a significant extent. UAV's low speed, light weight, and the absence of human judgment makes un predictable gust more dangerous. Autopilot design in general takes the gust effect into account to satisfy flight performance requirement. In this study...