D-TMP07  13:00 – 13:50  Study on TLS Position Decision System of Container Crane
Son Jeong-Ki (KPTI)
Park Rae-Bang (Busan Polytechnic College)
Kwon Soon-Jae (Pukyong National Univ.)

As choosing proper length of boom of container crane according as sort of vessels(18, 22, 24 columns and so on), reinforcing of capacity of DC motor to transport heavy loads, it's structure being oversized with flexibility and durability, the study is progressing on the automation for convenient operation and effective control. We often cannot but work slowly caused by swaying(pitching, rolling) of vessel. We can get productivity and efficiency by getting over it. The factors of swaying, as fellow;
- wave caused by vessels around moving
- wind and wave caused by weather change
- vessel's moving by change of load weight
- tide
- move of vessel
According to ......

D-TMP09  13:00 – 13:50  Precision Position Control of Piezoactuator Using Inverse Hysteresis Model and PID control
Kim Jung Yong, Lee Byung Yong, Yang Soon Yong,
Ahn Kyung Kwan (Univ. of Ulsan)

A piezoelectric actuator yields hysteresis effect due to its composed ferroelectric. Hysteresis nonlinearity is neglected when a piezoelectric actuator moves with short stroke. However when it moves with long stroke and high frequency, the hysteresis nonlinearity cannot be neglected. The hysteresis nonlinearity of piezoelectric actuator degrades the control performance in precision position control. In this paper, in order to improve the control performance of piezoelectric actuator, an inverse modeling scheme is proposed to compensate the hysteresis nonlinearity problem. And feedforward - feedback controller is proposed to give a good tracking performance. The Feedforward controller is inverse hysteresis model and PID control is used ...

D-TMP11  13:00 – 13:50  A Fuzzy Sliding Mode Controller for Nonlinear Robot System
Jeong-Joo Yun, Jang-Ku Kim, Cheol-Ki Ahn, Min-Cheul Lee
(Pusan National Univ.)

A proposed fuzzy-sliding mode controller in this paper shows that it can reduce amount of chattering inherent to sliding mode control and it is robust against parameter uncertainties. Sliding mode control is one of the control method for nonlinear systems. It can provide good transient performance and system robustness for nonlinear system. But chattering is a serious problem of the sliding mode control. The chattering is caused by steady-state error or uncertainties of the system. There are three kinds of method that can remove chattering. First, steady-state error can be removed by adding PI controller to the system. Second, putting dead-zone in sliding surface can be insensitive uncertainties......