

## Vortragsankündigung

Am

Mittwoch, 30. September 2015  
in Raum P1.302 um 11:00 Uhr

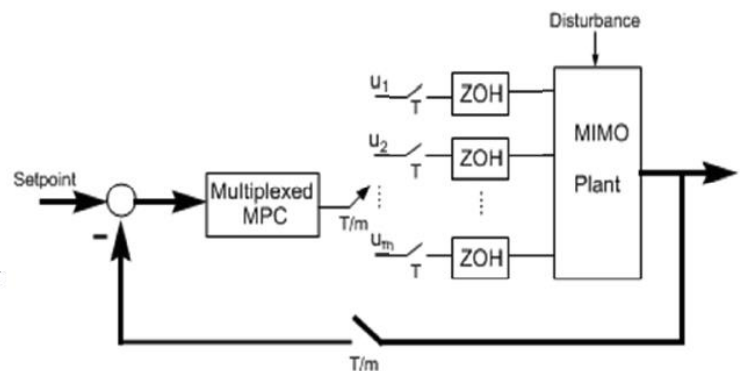
hält Herr **Prof. Keck Voon Ling** von der NTU Singapore einen Vortrag über

# *Multiplexed Model Predictive Control*

### Abstract:

In this talk, I will describe a form of Model Predictive Control (MPC) in which the control variables are moved asynchronously. This contrasts with most MIMO control schemes, which assume that all variables are updated simultaneously. MPC outperforms other control strategies through its ability to deal with constraints. This requires online optimization, hence computational complexity can become an issue when applying MPC to complex systems with fast response times. The Multiplexed MPC

(MMPC) scheme described in this talk solves the MPC problem for each subsystem sequentially, and updates subsystem controls as soon as the solution is available, thus distributing the control moves over a complete update cycle. The resulting computational speed-up allows faster response to disturbances, which may result in improved performance, despite finding sub-optimal solutions to the original problem. The effectiveness of MMPC will be demonstrated through several application examples.



### Bio:

Dr Keck-Voon LING is currently an Associate Professor in the School of Electrical and Electronic Engineering, Nanyang Technological University (NTU), Singapore. He received his B.Eng and DPhil degrees from the National University of Singapore and Oxford University, UK in 1988 and 1992 respectively. He was awarded the Commonwealth Fellowship (2001) and the Tan Chin Tuan Fellowship (2006) and was a visiting researcher at the Department of Engineering, University of Cambridge, in 2001 and 2006. He also held a joint appointment as a senior scientist at the Singapore Institute of Manufacturing Technology (SIMTech) from 2005-2010. From 2006-2010, Dr Ling was the Programme Manager of the A\*STAR Embedded and Hybrid Systems II (EHS-II) Research Programme, overseeing the R&D effort in Body Sensor Networks for Healthcare Applications. He was the general chair of the International Conference on Body Sensor Networks held in June 2010 in Singapore. Dr LING's main research interests include Model Predictive Control (MPC) and Moving Horizon Estimation (MHE), their embedded implementation and applications to fast dynamic systems. In recently years, he is applying his research to multi-band GNSS software receiver, as well as navigation and positioning applications.