LECTURE ANNOUNCEMENT (AVVISO DI SEMINARIO)

On May 29, 2015 at 11:30 in the Aula Caminetto of the Engineering School at Santa Marta, Dr. Graziano Chesi of the University of Hong Kong will give a lecture as detailed below.

In data 29 Maggio 2015, alle ore 11:30, presso l'Aula Caminetto del Plesso di Ingegneria in via Santa Marta 3, il Dr. Graziano Chesi dell'Università di Hong Kong terrà un seminario dal titolo e conetenuti sotto riportati.

TITLE:

Measuring the instability in parametric linear systems

ABSTRACT:

Measuring the instability is a key problem in control systems. This talk considers linear systems depending polynomially on parameters constrained in a semialgebraic set, and addresses the computation of the largest value of a key measure of the instability. It is shown that a sufficient condition for establishing an upper bound of the largest instability measure can be given in terms of a linear matrix inequality (LMI) feasibility test based on polynomially dependent quadratic Lyapunov functions. Moreover, it is shown that this condition is also necessary by using polynomials of degree sufficiently large under mild assumptions on the semialgebraic set. Also, a sufficient and necessary condition is presented for establishing the nonconservatism of a computed upper bound. Lastly, a sufficient and necessary LMI condition with upper bounds on the degree of the Lyapunov functions is proposed for linear systems depending on a single parameter.

BIOGRAPHY:

Graziano Chesi received the Laurea in Information Engineering from the University of Florence and the Ph.D. in Systems Engineering from the University of Bologna. He was with the University of Siena and is now with the University of Hong Kong. Dr. Chesi served as Associate Editor for Automatica, BMC Research Notes, the European Journal of Control, the IEEE Transactions on Automatic Control, the IEEE Transactions on Computational Biology and Bioinformatics, and Systems and Control Letters. He founded and served as chair for the Technical Committee on Systems with Uncertainty of the IEEE Control Systems Society. Also, he served as chair for the Best Student Paper Award Committees for the IEEE Multi-Conference on Systems and Control and the IEEE Conference on Decision and Control. He is author of the books "Homogeneous Polynomial Forms for Robustness Analysis of Uncertain Systems" and "Domain of Attraction: Analysis and Control via SOS Programming". Dr. Chesi is first author in more than 100 publications. He is in the Top 1% Scholars of the University of Hong Kong