Report of the IEEE CSS TC on CACSD

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Here is a summary of the activities of the TC

during the second semester of 2009.

\*\*\* Restructuring the TC on CACSD \*\*\*

Fabrizio Dabbene (Politecnico di Torino, Italy) will take over

as a Chair of the TC on CACSD following the MSC 2010 in Japan.

It is expected that Fabrizio works in close collaboration

with Graziano Chesi (Univ. Hong Kong), who is now chairing

the TC on SU (systems with uncertainty).

\*\*\* Publications \*\*\*

A special issue of the IEEE Transactions on Automatic Control on

Positive Polynomials in Control, edited by G. Chesi and myself,

has appeared in Volume 54, Issue 5, May 2009. The table of

contents is as follows:

Guest Editorial: Special Issue on Positive Polynomials in Control

Chesi, G.; Henrion, D.

Page(s): 935-936

Robust Performance Analysis of Uncertain LTI Systems: Dual LMI Approach and Verifications for Exactness

Ebihara, Y.; Onishi, Y.; Hagiwara, T.

Page(s): 938-951

Convex Matrix Inequalities Versus Linear Matrix Inequalities

Helton, J.W.; McCullough, S.; Putinar, M.; Vinnikov, V.

Page(s): 952-964

On Positivity of Polynomials: The Dilation Integral Method

Barmish, B.R.; Shcherbakov, P.S.; Ross, S.R.; Dabbene, F.

Page(s): 965-978

Exponentially Stable Nonlinear Systems Have Polynomial Lyapunov Functions on Bounded Regions

Peet, M.M.

Page(s): 979-987

Positive Polynomial Constraints for POD-based Model Predictive Controllers

Agudelo, O.M.; Baes, M.; Espinosa, J.J.; Diehl, M.; De Moor, B.

Page(s): 988-999

An Asymptotically Exact Approach to Robust Semidefinite Programming Problems with Function Variables

Oishi, Y.

Page(s): 1000-1006

Pre- and Post-Processing Sum-of-Squares Programs in Practice

Lofberg, J.

Page(s): 1007-1011

Stability Analysis of Implicit Polynomial Systems

Coutinho, D.F.; de Souza, C.E.; Trofino, A.

Page(s): 1012-1018

Stability Analysis of Time-Delay Systems With Incommensurate Delays Using Positive Polynomials

Munz, U.; Ebenbauer, C.; Haag, T.; Allgower, F.

Page(s): 1019-1024

Sum-of-Squares Decomposition via Generalized KYP Lemma

Hara, S.; Iwasaki, T.

Page(s): 1025-1029

A Region-Dividing Technique for Constructing the Sum-of-Squares Approximations to Robust Semidefinite Programs

Jennawasin, T.; Oishi, Y.

Page(s): 1029-1035

Robust Stability Analysis of Nonlinear Hybrid Systems

Papachristodoulou, A.; Prajna, S.

Page(s): 1035-1041

Local Stability Analysis for Uncertain Nonlinear Systems

Topcu, U.; Packard, A.

Page(s): 1042-1047

Optimal Control for Polynomial Systems Using Matrix Sum of Squares Relaxations

Ichihara, H.

Page(s): 1048-1053

Positivity, Complete Positivity, and SOS Representation

Bose, N.K.

Page(s): 1054-1057

Analysis of Polynomial Systems With Time Delays via the Sum of Squares Decomposition

Papachristodoulou, A.; Peet, M.M.; Lall, S.

Page(s): 1058-1064

\*\*\* Software \*\*\*

Vasile Sima informed me that the Subroutine Library for Control Theory

(SLICOT) has been updated for being distributed under a GNU General Public License.

The routine for L-infinity norm computation has been improved mainly

by calling the HAPACK-based SLICOT codes for computing the eigenvalues of

Hamiltonian matrices. Work is in progress for implementing

structure-exploiting eigensolvers for skew-Hamiltonian/Hamiltonian

matrix pencils.

\*\*\* Next meeting \*\*\*

Fabrizio Dabbene and Graziano Chesi are planning a joint meeting of

the CACSD and SU TCs during the IEEE CDC in Shanghai in December 2009.