



CENTRO DE INVESTIGACIÓN Y DE ESTUDIOS AVANZADOS DEL IPN

El Departamento de Control Automático

invita cordialmente a su

Seminario Departamental

Fundamental Continuity Properties for Variable Structure and Switched Affine Control Systems: Theory and Applications

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Martes 23 de Marzo, 2010, a las 11:00 horas, en el Salón de Usos Múltiples, Planta Baja del Depto. de Control Automático, CINVESTAV-IPN, Unidad Zacatenco, D.F.

This talk focuses on the continuity and approximability properties for nonlinear affine control systems. We consider dynamical systems governed by ordinary differential equations and establish strong continuity properties of the given and relaxed (in the sense of Filippov) systems with respect to controls and initial state variables. The approach based on the set-valued analysis makes it possible to study discontinuous models in the abstract setting and to obtain some general theoretical results. The latter can be effectively applied to wide classes of variable structure control systems. We deal with applications of the above-mentioned continuity and approximability to hybrid and switched control processes. We also consider some selected mathematical questions related to numerical analysis and optimization theory.

This is a work in cooperation with Prof. Magnus Egerstedt (School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA).

Vadim Azhmyakov: PhD (Control Engineering) 1995, Russian Academy of Sciences, Moscow. Habilitation (Mathematics) EMA University of Greifswald, Germany. 2 Books, 39 Journal papers, 26 Conf. papers, Fellow of DFG and of the Max-Planck-Institute Germany. DCA – CINVESTAV since July 2007.