

Departamento de Matemática Aplicada



CONFERENCIA MIÉRCOLES 28 DE SEPTIEMBRE DE 2022 A LAS 13:00

Stability of a Class of Forced Higher-Order Nonlinear Feedback Systems: an Input-Output Point of View

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We consider a class of forced continuous-time systems obtained by applying nonlinear feedback to a higher-order linear differential equation which defines an input-output system. The latter system directly relates input and to output signals, not involving any internal, latent or state variables. A suitable weak trajectory concept is introduced and a stability theory subsuming input-output versions of well-known stability criteria (circle criterion) is developed. Contact is made with the theory of input-to-state stability familiar from the state-space theory of nonlinear control systems.

Knowledge of mathematical control theory is not required in order to understand the presentation: all relevant control theoretic concepts will be introduced in the talk.

Lugar: Aula Luis Rodríguez Marín del Departamento de Matemática Aplicada de la UNED (Aula 2.32). E.T.S.I. Industriales.