Application of an Intelligent Control on Economics Dynamic System Described by Ordinary Differential Equation as a New Management Strategy

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Abstract

In the last 30 years, the dynamical behaviour of a widely number of constrained dynamical systems in numerous applications in economics (see A. Poznyak, A. Polyakov, V. Azhmyakov, (2014)), have been usually modeled via ordinary and differential-algebraic equations. This kind of nonlinear control problems are described by Ordinary Differential Equations (ODE) represent still a very active research area. The right-hand side of ODE belongs to the given *Quasi-Lipschitz* (Q-L) classes and is compatible with several widely used techniques of linear approximation related to plant models. Similar linearization-like ideas are common in the theoretical and numerical practice of control engineering H. K. Khalil (1996). This linearization-like approximation allows to rewrite original system into a linear control problem. The Attractive Ellipsoid Methodology (AEM) allows to reach a suitable solution for a class of given economics models.

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