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Nonlinear Observer Canonical Form for Genetic Regulation Process

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Abstract : This paper aims to study the existence of the change of coordinates which permits to transform a class of nonlinear dynamical systems into the so-called nonlinear observer canonical form (NOCF). Moreover, an algorithm to construct such a change of coordinates is given. Based on this form, we can design an observer with a linear error dynamic. This enables us to estimate the state of a nonlinear dynamical system. A concrete example (biological model) is provided to illustrate the feasibility of the proposed results.

Keywords : nonlinear observer canonical form, observer, design, gene regulation, gene expression
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