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Observer Design for a Class of Nonlinear Systems with Non-Full Relative Degree

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Abstract: The paper proposes a method for observer design for a class of nonlinear systems. We decompose the system using a weaker concept than the relative degree. We provide sufficient conditions for global asymptotic stability of the error dynamics. The observer design is carried out by means of a change of coordinates combined with a high gain technique. In particular, our approach results in an observer gain vector field which is extraordinary easy to compute.

Keywords: *Nonlinear system; coordinate change; observer design; Moore-Penrose inverse.*

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