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Shaobai Kan* (skan@jjay.cuny.edu), Department of Mathematics & Computer Science, John Jay College of Criminal Justice, CUNY, 445 W. 59th St., New York, NY 10019. *Identification of Systems with Structural Uncertainties using Binary Sensors*. Preliminary report.

This work is concerned with system identification for plants that are equipped with only binary-valued sensors. In the meantime, the systems that we investigate are subject to not only measurement noises, but also structural uncertainties such as unmodeled dynamics, sensor nonlinear mismatch, and observation bias. To identify the underlying system parameter, a truncated empirical estimate is constructed in this paper. Asymptotic analysis is developed to evaluate the quality of the proposed estimate. Upper and lower error bounds are established to analyze the dependence of the identification errors on the binary-valued outputs and these structural uncertainties. (Received September 18, 2011)