1098-93-251   **Jinglai Shen*** (`shenj@umbc.edu`), Dept. of Mathematics and Statistics, University of Maryland Baltimore County, Baltimore, MD 21250, and **Jianghai Hu**. *Domain of Convergence of Generalized Input-to-State ℓ_2-Gains of Discrete-time Switched Linear Control Systems.* Preliminary report.

The concept of $\mathcal{L}_2$ or ℓ_2-gains plays an important role in robust control and stability theory. It can be thought as the maximum output energy excited by a given input or perturbation energy. Computation and characterization of ℓ_2-gains for switched control systems poses a difficult numerical and analytical problem. Recently, a generalized input-to-state ℓ_2-gain is proposed for discrete-time switched linear control systems. Such an ℓ_2-gain is characterized by generating functions and can be efficiently computed. In this talk, we discuss more properties of the generalized ℓ_2-gains. In particular, we introduce the concept of domain of convergence (DOC) of two discount factors in the associated generating function. A variety of analytic properties of the DOC are established, and their implications for analysis and computation of the generalized ℓ_2-gains are discussed. (Received January 27, 2014)