1003-93-570 **Anthony N. Michel*** (`anthony.n.michel.1@nd.edu`), Department of Electrical Engineering, University of Notre Dame, Fitzpatrick Hall of Engineering, Notre Dame, IN 46556-5637, and **Ye Sun** (`ye.sun@csfb.com`), 11th Madison Avenue, New York, NY 10010. *Stability of Discontinuous Cauchy Problems in Banach Space.*

We present Lyapunov stability results, including Converse Theorems, for a class of discontinuous dynamical systems (DDS) determined by differential equations in Banach space (resp., Cauchy problems on abstract spaces).

DDS arise in the modeling process of a variety of systems, including hybrid dynamical systems, discrete event systems, switched systems, intelligent control systems, systems subjected to impulsive effects, and the like. Our results are applicable to finite dimensional DDS determined by ordinary differential equations and infinite dimensional systems determined by differential-difference equations, functional differential equations, Volterra integro-differential equations, various classes of partial differential equations, and so forth.

We demonstrate the applicability of our results in the analysis of several important classes of DDS, including systems determined by functional differential equations and partial differential equations. (Received September 22, 2004)