

Asymptotic Behaviour of Feedback Controlled Systems and the Ubiquity of the Brockett-Krasnosel'skiĭ-Zabreĭko Property

E.P. Ryan[†]

*Department of Mathematical Sciences, University of Bath,
Claverton Down, Bath, BA2 7AY, UK*

Received: February 15, 2000; Revised: June 6, 2001

Abstract: A well-known topological barrier – the Brockett-Krasnosel'skiĭ-Zabreĭko necessary condition on the underlying vector field – to stability of equilibria (or stabilizability of equilibria by regular feedback) of ordinary differential equations (or controlled differential equations) is shown to persist in a wider context of differential inclusions (encompassing controlled differential equations with nonsmooth feedback) that exhibit attracting compacta.

Keywords: *Brockett-Krasnosel'skiĭ-Zabreĭko condition; feedback controlled system.*

Mathematics Subject Classification (2000): 34D05, 93D15.