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O. G. do Rocio

Dep. de Matemática, Universidade Estadual de Maringá, UEM, Avenida Colombo 5790,
87020-900 - Maringá - PR, Brazil
rocio@uem.br

L. A. B. San Martin

Dep. de Matemática, Universidade Estadual de Campinas, UNICAMP, Cx. Postal 6065,
13.083-859 - Campinas - SP, Brazil
smartin@ime.unicamp.br

M. A. Verdi

Dep. de Matemática, Universidade Estadual de Maringá, UEM, Avenida Colombo 5790,
87020-900 - Maringá - PR, Brazil
maverdi@uem.br

Semigroup Actions on Adjoint Orbits

Let G be a connected semi-simple Lie group with finite center and $S \subset G$ a subsemigroup with $\text{int } S \neq \emptyset$. In this article we study the control sets for the actions of S on the adjoint orbits $\text{Ad}(G)H$, where H is a regular element in the Lie algebra of G . We show here that these sets can be described as sets of fixed points for regular elements in the interior of S . Moreover, we shall describe the domains of attraction of this control sets and show that these sets are not comparable with respect to the natural order on control sets.

Keywords: Semigroup, adjoint orbits, regular elements.

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