STABILITY BOUNDARY CHARACTERIZATION OF NONLINEAR AUTONOMOUS
DYNAMICAL SYSTEMS IN THE PRESENCE OF A SUPERCRITICAL HOPF EQUILIBRIUM
POINT

Abstract
A complete characterization of the boundary of the stability region (or area of attraction) of nonlinear autonomous dynamical systems is
developed admitting the existence of a particular type of nonhyperbolic equilibrium point on the stability boundary, the supercritical Hopf
equilibrium point. Under a condition of transversality, it is shown that the stability boundary is comprised of all stable manifolds of the
hyperbolic equilibrium points lying on the stability boundary union with the center-stable and center manifolds of the
type-k, k >= 1, supercritical Hopf equilibrium points on the stability boundary. (AU)

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Author(s):
Total Authors: 3

Affiliation:
[1] Fed Inst Bahia, Coll Eunapolis, BR-45822200 Eunapolis, BA - Brazil
[2] Univ Sao Paulo, Sch Engn Sao Carlos, Dept Elect Engn, BR-13566590 Sao Carlos, SP - Brazil
Total Affiliations: 2

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