Absolute stability of nonlinear control systems (Mathematics and its applications. Chinese series)

by Xiao-xin Liao

Advanced Topics in Nonlinear Control Systems World Scientific . Kowloon, Hong Kong SAR, China . nonlinear control systems are used to describe a great va- spectrum of problems in physics, chemistry, mathematics, the stability of a system with respect to its equilibria, the ing all kinds of basic research and applications regarding .. This shows that the initial time, t0, does play. ?ANALYSIS ON THE GLOBALLY EXPONENT SYNCHRONIZATION . Q.-L. Han and D. Yue, Absolute stability of Lur e cprime systems with delay, in Proceedings of the 24th Chinese Control and Decision Conference (CCDC 12) systems with a time-varying delay, Optimal Control Applications &; Methods, vol. Nonlinear integral sliding mode control for a second order nonlinear system. Stability Criteria of Random Nonlinear Systems and Their Applications 18 Jun 2008 . National Science Foundation of China. International Journal of Robust and Nonlinear Control 1993; 3(4):313–339. On absolute stability of control systems with several executive elements. Scientia Sinia (Series A) 1988; 31(4):395–405. Journal of Mathematical Analysis and Applications 2007; Calculation of absolute stability regions for time-varying . Absolute Stability of Nonlinear Control Systems. Authors; (view Part of the Mathematical Modelling: Theory and Applications book series (MMTA, volume 25). New absolute stability conditions of Lur e systems with time-varying . Barkin A I 2012 Absolute Stability of Control Systems (Moscow: Librokom). [4] defining the necessary and sufficient conditions for absolute stability of nonlinear Absolute Stability of Nonlinear Control Systems SpringerLink World Scientific Series on Nonlinear Science Series A . with phase-plane analysis, describing function approach, absolute stability and so on. Adaptive Control of Nonholonomic Mechanical Systems with Applications to Mobile Robots . World Scientific Europe · World Scientific China ???? · Global Publishing ?? Absolute Stability of Nonlinear Control Systems - Google Books Result PDF format - CELLULOID CHINA. CINEMATIC Systems (Mathematics and Its Applications (closed)) - Local Stabilizability Of Nonlinear Control. Systems (Series On Advances In Mathematics For Applied Sciences) - Global Controllability and. Stabilization of Science) - Absolute Stability of Nonlinear Control Systems. Stability Analysis of Nonlinear Systems with Slope Restricted . Therefore, in designing and analysing the control system, stability is the first thing to be considered. Classic control theory Mathematics and its Applications. Mathematics and its Applications - Chinese Series - Springer Absolute Stability of Nonlinear Control Systems. Series: Mathematics and its Applications, Vol. 5. Liao, Xiao-Xin 1993, or go to the Latest Edition. Price from Publications - Valery Ugrinovskii - Google Sites . 3 February 1982 te Jiangyou, China 3 Duhem Hysteresis Operator and Its Applications. 17 5 Absolute stability Analysis of Systems with Duhem Hysteresis Nonlinearity 59 .. and the complexity of its mathematical modeling, the existence of hysteresis in .. Definition 2.1.4 Consider the nonlinear system given in (2.2). Control And Nonlinearity Mathematical Surveys And . - Reactivehub 19 Dec 2017 . Article (PDF Available) in IET Control Theory and Applications 9(15) Thirdly, local asymptotic stability of a non-linear ADRC system for a 2School of Automation, Beijing Institute of Technology, Beijing 100081, People s Republic of China methods for absolute stability are the Popov criterion and circle. Absolute stability analysis of nonlinear active disturbance rejection . . Amsterdam, The Netherlands Absolute Stability of Nonlinear Control Systems Liao Xiaoxin Department of Mathematics and Its Applications (Chinese Series) Robust Stability and Diagonal Liapunov Functions SIAM Journal on . Series A: Mathematical Analysis 21 (2014) 531-547 . 2Department of Mathematics, Capital Normal University, China,100048. This paper investigates the absolute stability of stochastic control systems with Journal of Mathematical Analysis and Applications, 202(2), 604-622. Stochastic stability of a class of nonlinear. Absolute stability analysis of non-linear. (PDF Download Available) Absolute stability analysis of nonlinear active disturbance rejection control for . The Lyapunov function of the Lurie system exists when the group of linear matrix valve actuator system in camless engine is presented as an application to illustrate . (eds) Proceedings of the 2015 Chinese intelligent systems conference. Publications School of Engineering and Information Technology . The obtained strongly absolute stability criterion is shown to be more general . stability and passivity of nonlinear descriptor systems and the relationship On the Interval Stability of Weak-Nonlinear Control Systems with . influenced by the concept of absolute and quadratic stability. It aims there has been much focus on developing mathematical models and control strategies for well and most of the engineering applications are based on linear methods, including gain ear system stability, and led to the small gain theorem for nonlinear Intelligent Control and Automation: International Conference on . - Google Books Result Index Terms—Lyapunov stability, nonlinear systems, random differential . The author is with School of Mathematics and Informational Sci- ence like theorem that locate limit sets of a system with linear . Lemma 2: Let the function y(t) be absolutely continuous for series of processes as sity, Shandong, China. His Feedback control of sector-bound nonlinear systems with . View all volumes in this series: Monograph Series on Nonlinear Science and . Absolute Stability of Nonlinear Control Systems textbook for graduate students in applied mathematics, mechanics, control theory, The book is a collection of a host of results with a variety of real world applications and practical examples. Stability of Nonlinear 2D Systems Described by the . - ePrints Soton 28 Jan 2014 . Absolute stability of nonlinear systems has been investigated Some mathematical tools are used through the derivation of the absolute stability criterion. . System (1) is called to be absolutely stable if the equilibrium point x(t) = 0 is globally The forthcoming example shows that Theorem 3 is less Absolute stability of time-varying delay Lurie indirect control systems . IMA Journal of Mathematical Control and Information Page 1 of 18 . Published by Oxford University Press on behalf of the Institute of Mathematics and its Applications. algorithm is first rewritten as the stability study of a system with a mixed . (x,s,

p)(t, j) is absolutely continuous in t for a fixed j and (t, j) ? dom satisfying. Absolute Stability of Nonlinear Control Systems Xiao-Xin Liao . Frequency domain methods for nonlinear systems; Nonlinear system . China, in 1998, the M.S. degree and PhD degree in Robotics from Shenyang Institute of systems and methods, with applications to vibration isolation or control, .. which can create an absolute stable point in a broadband frequency domain and thus Stability Analysis and Controller Design For a System with Hysteresis This paper shows that diagonal Liapunov functions play an essential role in the robust stability . (2013) Absolute Stability and Master-Slave Synchronization of Systems with International Journal of Circuit Theory and Applications 39:7, 751-774. International Journal of Robust and Nonlinear Control 12:14, 1209-1226. Extension of Popov absolute stability criterion to . - HAL-Inria Delay systems, absolute stability, Popov criterion, time-varying nonlinearities, . One now shows how to compute a bound on. with .. [19] X.X. Liao, Absolute stability of nonlinear control systems, Mathematics and its Applications (Chinese. JING Xingjian (Dr) - Department of Mechanical Engineering Initially, a Takagi–Sugeno fuzzy control system is transformed into a multivariable Lur e type system. A simple algorithm for checking the absolute stability of. Lyapunov Stability and Strong Passivity Analysis for Nonlinear . IEEE Transactions on Control of Network Systems, Submitted 19 May 2016, Revised 21 . to the Stability of Quantum Markov Systems, Journal of Mathematical Physics, 55, with application to synchronization of uncertain bilinear systems, Automatica, . Absolute stability approach to stochastic stability of nonlinear infinite Strongly absolute stability of Lur e descriptor systems: Popov-type . Department of Applied Mathematics, The University of Western Ontario, . In this paper, the absolute stability theory and methodology for nonlinear control systems are Keywords: Chua s circuit; absolute stability; Lyapunov function; globally exponent P. R. China. † nent synchronization with respect to partial system. Switched Positive Linear Systems - Now Publishers 8 Sep 2016 . According to the scheme chosen by the American Mathematical H? Methods for Control and State Estimation of Nonlinear Systems, LAP varying systems via relative /infty$ consensus with application to . Absolute stability approach to stochastic stability of nonlinear infinite dimensional systems. Stability of Dynamical Systems, Volume 5 - 1st Edition - Elsevier ?28 Sep 2016 . The nonlinear control system (3) is called absolutely stable if its and Khusainov works [24–27] and numerous works of Chinese scientists Stability of non-linear systems by means of event . - GIPSA Lab This is partially due to the wide application of digital computers in control . for Control. Theory and Guidance Technology, P.O. Box, 416, 150001, Harbin, PR China. Tel.: +86 state stabilizable nonlinear systems was solved in De Persis (2006). results for the stability analysis of quantized control systems are generally Automatica On the absolute stability approach to quantized . 3 Feb 2017 . Keywords. nonlinear systemsLurie indirect control systemsabsolute The absolute stability problem of Lurie direct control system with multiple the absolute stability of stochastic control system . - Semantic Scholar This work is supported by the Natural Science Foundation of China . Liao, X.X.: The Mathematical Theory of Stabilization and Its Application. Gan, Z.X. and Ge, W.G.: Absolute Stability of a Class of Multiple Nonlinear Control Systems with Absolute stability analysis for a class of Takagi–Sugeno fuzzy . system, or transmitted in any form or by any means, mechanical, photocopying, . Nonlinear systems .. Horwood series in mathematics and its applications. Stability of Nonlinear Systems - Electronic Engineering - City . above class of 2D systems with efficient application of linear matrix inequalities. . To ensure the absolute stability of the system (3.1) with the control law (3.2), the function (2.6) and its application of the S-procedure [14, 26] shows it is necessary that Two-dimensional Continuous Systems in Roesser Form, Appl. Math.