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ALGEBRAIC CURVE SOLUTION FOR SECOND-ORDER POLYNOMIAL AUTONOMOUS SYSTEMS*

ZHAOSHENG FENG†

Abstract. In this paper, by the method of the analysis of algebraic curves and the division theorem for two variables in $\mathbb{C}$, the nonexistence of the algebraic curve solution of the second-order polynomial autonomous systems in $\mathbb{C}$ is obtained. The results are of important significance in the qualitative theory of polynomial autonomous systems and the integrability of nonlinear ordinary differential equations.

Key words. Autonomous system, algebraic curve, division theorem, Van der Pol equation.

AMS subject classifications. 13P10, 34A05

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†Department of Mathematics, Texas A&M University, College Station, TX 77843, USA (zsfeng@math.tamu.edu).