

On the number of limit cycles for piecewise holomorphic systems

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1 Abstract

In this work we are concerned with determining the number of limit cycles for piecewise holomorphic systems with a straight line of discontinuity. For that, we give the general formulas to calculate the Lyapunov quantities for these types of systems and we use these quantities to generate limit cycles for the focus-focus case. Also, the averaging method is employed to study bounds of limit cycles in the center-center case. In addition, we provide sufficient conditions to ensure that piecewise linear holomorphic systems have at least 3 limit cycles bifurcating from the infinity. Finally, we give families of this class of systems that possess algebraic limit cycles.

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