QUADRATIC VECTOR FIELDS WITH A WEAK FOCUS OF THIRD ORDER

Joan C. Artés and Jaume Llibre

Abstract

We study phase portraits of quadratic vector fields with a weak focus of third order at the origin. We show numerically the existence of at least 20 different global phase portraits for such vector fields coming from exactly 16 different local phase portraits available for these vector fields. Among these 20 phase portraits, 17 have no limit cycles and three have at least one limit cycle.