On the limit cycles of the Lienard differential systems

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Resumen

One of the main interesting problems in the qualitative theory of planar differential equations is the classical problem of studying their limit cycles. When the differential equations are polynomial this is the well known 16th Hilbert's problem.

A particular case of the 16th Hilbert's problem is the study of the limit cycles of the Lienard systems of the form x' = y - F(x), y'= -x, where F(x) is a polynomial. For these systems there exists the conjecture of Lins, de Melo and Pugh about their number of limit cycles, revisited by Smale later on. We will talk about this problem, and present old and new results on it.