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ON NONSMOOTH PERTURBATIONS OF NONDEGENERATE PLANAR CENTERS

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To Jaume Llibre in his 60^{th} birthday

Abstract: We provide sufficient conditions for the existence of limit cycles of nonsmooth perturbed planar centers when the discontinuity set is a union of regular curves. We introduce a mechanism which allows us to deal with such systems. The main tool used in this paper is the averaging method. Some applications are explained with careful details.

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Key words: Averaging method, algebraic variety, periodic solution, nondegenerate center, discontinuous differential system.