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COMPLEX LENGTH AND PERSISTENCE OF LIMIT CYCLES IN A NEIGHBORHOOD OF A HYPERBOLIC POLYCYCLE

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To Jaume Llibre for his 60th birthday, with best and friendly wishes

Abstract: Complex limit cycle located in a neighborhood of a hyperbolic polycycle can not vanish under a small deformation that preserves the characteristic values of the vertexes of the polycycle. The cycles either change holomorphically under the change of the parameter, or come to the boundary of the fixed neighborhood of the polycycle. The present paper makes these statements rigorous and proves them.

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