4-dimensional zero-Hopf bifurcation for polynomial differentials systems with cubic homogeneous nonlinearities via averaging theory

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Abstract: The averaging theory of second order shows that for polynomial differential systems in $\mathbb{R}4$ with cubic homogeneous nonlinearities at least nine limit cycles can be born in a zero-Hopf bifurcation.

Keywords: Hopf bifurcation; averaging theory; cubic polynomial differential systems.

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Biographical notes: Amar Makhlouf is a Professor at the Badji Mokhtar university of Annaba (Algeria). He has visited different important universities. He has published many papers and has a large number of PhD students. He is working on limit cycles, sixteenth Hilbert problem, averaging theory and Celestial Mechanics.

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