

Bifurcations of critical periods: an algorithmic approach

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We describe a general approach to studying bifurcations of critical periods based on a complexification of the system and algorithms of computational algebra. Using this approach we obtain upper bounds on the number of critical periods of several families of cubic systems. In some cases we overcome the problem of nonradicality of a relevant ideal by moving it to a subalgebra generated by invariants of a group of linear transformations.