The Emergence and Approximation of Tori

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Abstract:

A remarkable aspect of the system Sprott A and a few generalizations is the observed presence of families of invariant tori, known earlier inconservative systems. We can link the tori bifurcation phenomenon to time-reversal and canards.

For more general isolated tori in dissipative systems we can develop an integral iteration scheme based on contraction and quasi-periodic secularity conditions. The technique leads to conditions for the presence of tori and possibly other invariant manifolds. The general idea can be illustrated by for instance coupled Van der Pol-equations