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Toroidal normal forms for delay-differential equations

We will present some recent results on the realisability and restrictions of normal forms for parametrized scalar delay-differential equations undergoing either non-resonant multiple Hopf bifurcation, or steady-state/non-resonant multiple Hopf interaction. Our results fully exploit the toroidal equivariance of the normal forms for these bifurcations. This allows for the development of a framework in which generic cases, degenerate cases, and unfoldings can be treated systematically.

This is joint work with Youn Sun Choi.