

# ON A BIFURCATION DELAY IN DIFFERENTIAL EQUATIONS WITH A DELAYED TIME $2n\pi$

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Topic #7: *Nonstandard Methods in Differential Equations.*  
Also Topic #6: *Nonstandard Methods in Dynamical Systems and Control Theory.*

[Joint work with R.Miyazaki.<sup>1</sup>]

In the Dynamic Hopf Bifurcation it is known that the bifurcation delay occurs. In this paper we will show that the bifurcation delay is persistent under adding a delayed feedback control term with a delayed time  $2n\pi$  ( $n$  is any positive integer) if the period of the Hopf bifurcating solution is  $2\pi$ . We will also give some numerical simulation results which suggest that the length of the bifurcation delay is shorter as  $n$  is increase.

*2000 Mathematics Subject Classification:* 34K18,37G10,37L10,74H60.

*Key Words:* dynamic bifurcation, bifurcation delay, delay differential equations.

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