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Stability of scalar equation with variable delay: stories from the non-autonomous world

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Abstract

In this talk, we shall introduce some simple integral based criteria that guarantee the absolute and conditional stability of the trivial solution for a scalar equation with a variable delay in a non-autonomous setting. Applications to well-known population dynamics models are presented to illustrate the criteria. As a byproduct, we shall prove a global stability result inspired by the Markus–Yamabe conjecture.

References

[1] P. Amster, A. Castañeda and G. Robledo, Absolute and Conditional Stability in Non-Autonomous Differential Equations with Time and State Dependent Delay. *Submitted*.

[2] L Markus and H Yamabe, Global stability criteria for differential systems. *Osaka J. Math.* **12** (1960), 305–317.

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