

1056-34-1721

Sigrun Bodine* (sbodine@ups.edu), 1500 N Warner, Tacoma, WA 98416, and **D.A. Lutz**. *On second order nonoscillatory scalar linear dynamic equations on time scales*. Preliminary report.

We are interested in the asymptotic behavior of solutions of

$$[r(t)x^\Delta]^\Delta + f(t)x^\sigma = 0, \quad t \geq t_0, \quad t \in \mathbb{T},$$

as a perturbation of

$$[r(t)y^\Delta]^\Delta + g(t)y^\sigma = 0, \quad t \geq t_0, \quad t \in \mathbb{T},$$

which is assumed to be nonoscillatory at infinity (here $r(t) > 0$).

This problem was considered in the context of differential equations by a variety of mathematicians including Hartman and Wintner, Trench, Šimša, Chen, and Chernyavskaya and Shuster. Recently, first results on time scales were established by Bohner and Stević.

In our talk, we offer a new approach to this problem. Working in a matrix setting, we use preliminary and so-called conditioning transformations to bring the system in the form

$$z^\Delta = [\Lambda(t) + R(t)]z,$$

where the diagonal matrix Λ and the perturbation R satisfy the conditions of Levinson's Fundamental Theorem on time scales as established by Bohner and Lutz.

This is a joint work with Professor Donald A. Lutz from San Diego State University. (Received September 22, 2009)