

1145-VV-2261 **Chris Ahrendt*** (ahrendcr@uwec.edu), HHH 508 - Mathematics Dept., 124 Garfield Avenue,
UW-Eau Claire, Eau Claire, WI 54701. *Periodic Solutions and Bifurcations of the Bernoulli
Dynamic Equation on a Certain Class of Time Scales*. Preliminary report.

The time scale calculus generalizes and unifies differential and difference equations, but also is a source of many interesting results that do not have a direct analog to these classic cases. An introduction to the key results of the time scale calculus will be provided, and then used to develop the so-called Bernoulli dynamic equation on time scales.

Using the framework of the time scale calculus, we will focus on the discrete analog of the classic Bernoulli differential equation. In particular, we will explore the bifurcations that occur as a parameter determining the time scale is varied. For certain parameter values, periodic solutions occur. We will apply classic dynamical system results to understand the nature of these periodic solutions. (Received September 25, 2018)