1014-65-1438 **James W Rogers*** (James_W_Rogers@baylor.edu), Baylor University, Department of Mathematics, Box 97328, Waco, TX 76798. *A Qualitative Analysis of the Diamond-α Dynamic Derivatives on Time Scales.* Preliminary report.

Various dynamic derivatives play a central role in the theory and applications of time scales. Recent discussions of combined dynamic derivatives, in particular the diamond-α derivatives, have promised improved approximation formulae for computational applications. Heretofore, the status of these combined derivatives as well-defined dynamic derivatives on time scales has been assumed. This paper presents an equivalent definition of the diamond-α functions without reference to the existing delta and nabla dynamic derivatives, and rigorously verifies these new functions as well-defined dynamic derivatives. Further, the feasibility of a corresponding diamond-α integral is explored. (Received September 28, 2005)