1077-39-1406   **Kevin Ahrendt** (`kahrendt@gmail.com`), **Lucas Castle*** (`lucas.c.castle@gmail.com`), **Holm Michael** (`s-mholm3@math.unl.edu`) and **Kathryn Yochman** (`yochmake@rose-hulman.edu`).
Nabla Discrete Fractional Calculus.

We will first define positive and negative nabla fractional differences for functions defined on $N_a = \{a, a+1, a+2, \cdots\}$. The corresponding discrete nabla Laplace transform will be defined and we will prove several properties of these nabla Laplace transforms including the nabla Laplace transform of fractional Taylor monomials. The discrete nabla Mittag-Leffler function will be introduced and we will derive a variation of constants formula for solving nabla discrete fractional initial value problems. Finally we will show how to use our Laplace transform results to prove composition properties of nabla fractional differences. (Received September 19, 2011)

1