1077-35-183 **Pablo U Suarez*** (psuarez@desu.edu), Department of Mathematical Sciences, Delaware State University, 1200 N. DuPont Highway, Dover, DE 19901. *Exponential Operator Splitting for the generalized Kawahara equation.*

In this paper we present a split scheme to handle the generalized Kawahara equation. The Kawahara equation is a fifth order non-linear partial differential equation. This equation occurs in the theory of magneto-acoustic waves in plasmas and also in shallow water waves with surface tension. In this work we present an easy and fast algorithm to handle the fifth order derivative and the non-linearity. The method is based on Strang's splitting scheme and uses the fast Fourier transform for handling high order derivatives. Our method is both fast and accurate. To test our results we present three test cases and compare them against analytical solutions. We also calculate numerically the conserved quantities of linear momentum and energy and compare them with known analytical results. (Received August 16, 2011)