1010-35-70 **Boris P Belinskiy*** (`Boris-Belinskiy@utc.edu`), Dept. of Mathematics, Dept. #6956, 615 McCallie Avenue, Chattanooga, TN 37403-2598, and **John R Graef** (`John-Graef@utc.edu`), Dept. of Mathematics, Dept. #6956, 615 McCallie Avenue, Chattanooga, TN. *On the connection between a nonlinear Sturm-Liouville problem and a quasi-KdV equation.* Preliminary report.

We establish a connection between the solutions of the Sturm-Liouville problem for the nonlinear differential equation, $y'' + My + 2My^3 = 0$, $y(0) = y(s^*) = 0$ that arises in the study of the torsion of a wing in an air flow (with M being the Mach number) and a partial differential equation $Mu_t = 6Mu^2u_x + u_{xxx}$ similar to the Karteweg-de Vries equation. We show that any solution of the nonlinear Sturm-Liouville problem generates a solution of that partial differential equation. We also construct some first integrals of that partial differential equation. (Received August 19, 2005)