1053-34-217 **Greg Spradlin*** (`spradlig@erau.edu`), Math. Dept., ERAU, 600 S. Clyde Morris Bv., Daytona Beach, FL 32114. *Heteroclinic Solutions to an Asymptotically Autonomous Second Order Equation.*

A differential equation of the form $\ddot{x}(t) = a(t)V'(x(t))$ is studied, where V is a double-well potential with minima at $x = \pm 1$ and $a(t) \to l > 0$ as $|t| \to \infty$. It is proven that under certain additional assumptions on a, there exists a heteroclinic solution x to the differential equation with $x(t) \to -1$ as $t \to -\infty$ and $x(t) \to 1$ as $t \to \infty$. The assumptions allow $l - a(t)$ to change sign for arbitrarily large values of $|t|$, and do not restrict the decay rate of $|l - a(t)|$ as $|t| \to \infty$. (Received September 04, 2009)