1046-14-1756 **Darren Glass** and **W. David Joyner*** (wdj@usna.edu), Mathematics Department, United States Naval Academy, Annapolis, MD 21402, and **Amy Ksir**. *Structure of Riemann-Roch G-modules for $y^m = x^p - x$ over $GF(p)$.*

Let X denote the curve $y^m = x^p - x$ over a field of characteristic p. It is known that the automorphism group G of X is an extension of $\mathbb{Z}/m\mathbb{Z}$ by $PGL(2,p)$. Let D be a G-invariant divisor on X. We compute explicitly the G-module structure of the Riemann-Roch space $L(D)$ (equivalently, on the linear system $|D|$). Examples using SAGE are given to illustrate both the computational nature of the results, and the applications to the theory of error-correcting codes. (Received September 16, 2008)