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**Wendy Dandurand\*** (xiaochh@CLEMSON.EDU), Department of Math Sciences, Clemson University, Clemson, SC 29634-0975. *Computation of Explicit Bases for a Class of Riemann-Roch Spaces.*

Leonard and Pellikaan developed the  $q$ -th power algorithm to compute module bases for the integral closure of the polynomial ring  $\mathbb{F}_q[x]$  in a class of function fields. In this talk I will present a streamlined simpler version of this algorithm so that one efficiently obtains an  $\mathbb{F}_q$ -basis for a class of Riemann-Roch spaces without any redundant computation. Further, this reformulation allows one to determine a bound of the number of steps required for the algorithm to run. Explicit bases for Riemann-Roch spaces are important for in the construction of algebraic geometric codes. This is joint work with Hiren Maharaj. (Received January 09, 2007)