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Caleb M. Shor* (cshor@bates.edu), Bates College Math Department, 3 Andrews Road, Lewiston, ME 04240. *Genus calculations for towers of function fields arising from equations of C_{ab} curves.*

The introduction of geometric Goppa codes in the late 1970s has led to an interest in the genera of function fields over finite fields. We present a large class of function fields arising from the defining equations of C_{ab} curves and calculate the genera. Instead of using the Hurwitz genus formula, for which one needs to know about ramification, we instead use the Riemann-Roch theorem to calculate the genus by counting the number of Weierstrass gap numbers associated to a particular divisor. These function fields are of interest because the Riemann-Roch spaces of functions associated to certain divisors in these function fields are easy to calculate, so one can create the associated Goppa codes. (Received September 23, 2006)