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Ruling polynomials and augmentations over finite fields.

For any Legendrian link, L , in $(\mathbb{R}^3, \ker(dz - y dx))$ we define invariants, $Aug_m(L, q)$, as normalized counts of augmentations from the Legendrian contact homology DGA of L into a finite field of order q where the parameter m is a divisor of twice the rotation number of L . Generalizing a result of Ng and Sabloff for the case $q = 2$, we show the augmentation numbers, $Aug_m(L, q)$, are determined by specializing the m -graded ruling polynomial, $R_L^m(z)$, at $z = q^{1/2} - q^{-1/2}$. As a corollary, we deduce that the ruling polynomials are determined by the Legendrian contact homology DGA. (Received September 14, 2013)