Ruling polynomials and augmentations over finite fields.

For any Legendrian link, $L$, in $(\mathbb{R}^3, \ker(dz - y \, dx))$ we define invariants, $\text{Aug}_m(L, q)$, 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, $\text{Aug}_m(L, q)$, are determined by specializing the $m$-graded ruling polynomial, $R^m_L(z)$, 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)