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An Artin-Schreier tower of function fields in even characteristic

Let \mathbb{F}_2 be a finite field with two elements. In 2006 Beelen, Garcia and Stichtenoth proved that any recursive tower of function fields over \mathbb{F}_2 , defined by $g(Y) = f(X)$ with $g(T), f(T) \in \mathbb{F}_2(T)$ and $\deg f = \deg g = 2$ is given by the Artin-Schreier equation

$$Y^2 + Y = \frac{1}{(1/X)^2 + (1/X) + b} + c$$

with $b, c \in \mathbb{F}_2$. They checked that all the possible cases were already considered in previous works, except when $b = c = 1$. In fact, they left as an open problem to determine whether this tower is asymptotically good or not over \mathbb{F}_{2^s} , for any positive integer s . In this talk we will discuss the asymptotic behavior of this tower.