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Notes on q -ary Interleaved Sequences

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Abstract A sequence u over a finite field F_q is called an $(f(x), m)$ -interleaved sequence [1] if $f(x)$ is a common characteristic polynomial of all its m -decimated sequences. This paper demonstrate how the subjects such as the minimal polynomial, the linear span, the period and the correlation values of an $(f(x), m)$ -interleaved sequence are related to its m -decimated sequences when $f(x)$ is irreducible, and makes a correction to an error made in [1] in studying the same problem. Moreover, this paper shows how to choose the m -decimated sequences to construct some sequences with the optimal auto and cross correlation vales among the $(f(x), m)$ -interleaved sequences when $f(x)$ is primitive and m is less than the period of $f(x)$.