



THE ENHANCED PRINCIPAL RANK CHARACTERISTIC SEQUENCE OVER A FIELD OF CHARACTERISTIC 2^*

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Abstract. The enhanced principal rank characteristic sequence (epr-sequence) of an $n \times n$ symmetric matrix over a field \mathbb{F} was recently defined as $\ell_1 \ell_2 \cdots \ell_n$, where ℓ_k is either **A**, **S**, or **N** based on whether all, some (but not all), or none of the order- k principal minors of the matrix are nonzero. Here, a complete characterization of the epr-sequences that are attainable by symmetric matrices over the field \mathbb{Z}_2 , the integers modulo 2, is established. Contrary to the attainable epr-sequences over a field of characteristic 0, this characterization reveals that the attainable epr-sequences over \mathbb{Z}_2 possess very special structures. For more general fields of characteristic 2, some restrictions on attainable epr-sequences are obtained.

Key words. Principal rank characteristic sequence, Enhanced principal rank characteristic sequence, Minor, Rank, Symmetric matrix, Finite field.

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