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Cross-Correlations of p -ary Maximal-Length Sequences: the Few and the Rational

In 1976, Helleseth showed that the cross-correlation function for any pair of p -ary maximal-length sequences (that are not cyclic shifts of each other) assumes at least three values. These values were already known to be real algebraic integers, not necessarily rational when the prime p exceeds three. We outline a proof that if the cross-correlation function takes precisely three values, then they must in fact be rational integers.