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Correlation of m-sequences and their applications

Abstract: The correlation between two binary sequences is the number of agreements minus the number of disagreements over a full period. In modern communication systems one needs families of sequences with good correlation properties. Many sequence families used in practical communication systems depend heavily on properties of m-sequences (maximum-length sequences) and their correlation properties.

In this talk we give a brief overview of the cross-correlation between m-sequences and some applications. Furthermore, we show how some problems on m-sequences are related to problems in other areas of mathematics such as difference sets, strongly regular graphs, almost perfect nonlinear functions, solutions of equations over finite fields.