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Optimal Equidistant Codes with Alphabet Size $q \geq 3$

There has been recent renewed interest in optimal equidistant codes; however, research on this topic goes back almost 60 years. At the most recent Summer CMS meeting, I spoke on optimal equidistant codes over a binary alphabet. Here I will turn to codes over an alphabet of size $q \geq 3$. First, I will show an equivalence between equidistant codes and (r, λ)-designs. This equivalence is fairly obvious, but it doesn't seem to have been exploited in the research literature. Using this equivalence, I will discuss some new and old results on equidistant codes. I will show how some of results can be proven easily using results on (r, λ)-designs, by Vanstone and others, that date back to the 1970's. This talk is based on joint work with Tim Alderson.