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*Linear feedback shift registers and covering arrays*

The set of fixed length subintervals of a linear feedback shift register form a linear code. A very nice theorem of Bose from 1961 proves that these codewords form the rows of an orthogonal array of (maximum) strength  $t$  if and only if the dual linear code has minimum weight  $t + 1$ . Additionally the only strength  $t + 1$ -coverage which is missing from the OA corresponds to multiples of the generating polynomial of the LFSR. We use this and results on difference sets over finite fields to construct a new family of strength 3 covering arrays from these orthogonal arrays.