Abstract

Let p be an odd prime, q be a divisor of $p-1$ and μ be a primitive root mod p. A q-ary power residue sequence (PRS) $\{s(n)\}$ of period p is defined as $s(n) = k$ if $n \in C_k$ where $C_k = \{\mu^{qt+k} | t = 0, 1, 2, ..., T-1\}$ where $T = (p-1)/q$. In this paper, we prove that the maximum absolute value of the periodic crosscorrelation of two distinct q-ary PRS's of period p is upper bounded by $\sqrt{p} + 2$.