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DAE SAN KIM* (dskim@sogang.ac.kr), Department of Mathematics, Sogang University, Seoul, 121-742, South Korea. *Infinite Families of Recursive Formulas Generating Power Moments of Kloosterman Sums: Symplectic Case.*

In this paper, we construct two infinite families of binary linear codes associated with double cosets with respect to certain maximal parabolic subgroup of the symplectic group $Sp(2n, q)$. Here q is a power of two. Then we obtain an infinite family of recursive formulas for the power moments of Kloosterman sums and those of 2-dimensional Kloosterman sums in terms of the frequencies of weights in the codes. This is done via Pless power moment identity and by utilizing the explicit expressions of exponential sums over those double cosets related to the evaluations of “Gauss sums” for the symplectic groups $Sp(2n, q)$. (Received September 15, 2008)