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Li Chen* (lchen@udc.edu), 4200 Connecticut Ave, N.W., Department of Computer Science and IT, University of the District of Columbia, Washington, DC 20008. *Error-Correction Coding using Combinatorial Representation Matrices.*

This talk will start with the optimum SEC-DED (Hamming) code, the Hsiao code. We will use a recursive method to generate the (0,1)-check matrix of the code to meet the requirement of each column contains the same odd-number of 1's and each row contains the same number of 1's or differs at most by one for the number of 1's. We will also show that the algorithm based on our method attained optimum in average cases if a divide-and-conquer technique must be involved in the algorithm. We then introduce a general method based on Combinatorial matrices for other coding problems such as two problems related to the set of k linearly independent vectors over $GF(2^b)$. We finally will study the relationship between such a coding method with scheduling problems in the real world. (Received September 15, 2008)