

On the Energy of $(0, 1)$ -matrices

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(joint work with H. Kharaghani)

The energy of a matrix is the sum of its singular values. We study the energy of $(0, 1)$ -matrices and present two methods for constructing balanced incomplete block designs whose incidence matrices have the maximum possible energy amongst the family of all $(0, 1)$ -matrices of given order and total number of ones. We also find a new upper bound for the energy of (p, q) -bipartite graphs.

MSC2000: 05C50, 05B05, 05B20.

Keywords: Energy of graphs, energy of matrices, balanced incomplete block designs, Hadamard matrices, bipartite graphs.