1146-15-127 **Frank J Hall*** (fhall@gsu.edu). *G-matrices, J-orthogonal matrices, and their sign patterns.*

A real matrix A is a *G-matrix* if A is nonsingular and there exist nonsingular diagonal matrices D_1 and D_2 such that $A^{-T} = D_1AD_2$, where A^{-T} denotes the transpose of the inverse of A. Denote by J a diagonal (signature) matrix, each of whose diagonal entries is $+1$ or -1. A nonsingular real matrix Q is called *J-orthogonal* if $Q^TJQ = J$, or equivalently, if $Q^{-T} = JQJ$. Many connections are established between these two types of matrices. An investigation into the sign patterns of the J-orthogional matrices is initiated. Some examples and open questions are provided. (Received January 14, 2019)