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AN EXPRESSION FOR EVALUATING SENSITIVITY TO A RANDOM PARAMETER

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The authors study the evaluation of sensitivity for a linear system by means of orthonormal functions.

Thus, a parameter whatever of a linear system is represented as a random variable. The sensitivity of the system is a variation function of the parameter at the system input and output, being expressed analytically by the mean value of the integral difference. Direct methods for evalutaing sensitivity are clumsy and yield approximate solutions on the basis of statistical computations of the Monte-Carlo type. The authors suggest a method of computation using orthonormal functions of the Walsh type. A system of differential equations is associated to the random parameters of the linear system, having a branch-like distribution.

A few illustrative examples are given and, in conclusion, a comparison is made between the results obtained by this method and by the Monte-Carlo method.

C.C.