

## Abstract

The paper presents the application of the Taguchi's global optimisation algorithm to analyse the self-excited induction generator performances. The analysis is based essentially on finding the root of the equivalent circuit's admittance (or the impedance) being equated to zero. This equation has two unknowns the magnetizing reactance and the frequency. The two variables depend strongly on the equivalent circuit parameters and the external parameters which are the load, the excitation capacitance and the prime mover rotor speed. Previous work on the subject have used either gradient based or global search algorithms. In this work, a new global search technique is used to solve this equation. Besides its global search features, this optimization algorithm is superior in terms of accuracy and ease of implementation. A study of some simulations results carried out using Matlab software has been done to corroborate the above advantages