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Abstract

The main objective of this paper is to seek the simplest possible identification model that can simulate closely the dynamic behaviour of a synchronous generator. The successful development of such a model would be of help in devising efficient on-line digital controllers. For this purpose, the recursive least-squares method of identification has been used. In this respect it has been found that both a third order and a second order identifier are successful in performing this job. The remarkable finding here is the capability of such reduced models of simulating the dynamics of synchronous generators under the effect of the sub-synchronous resonance phenomenon, where the order of the differential equations describing the system understudy is extremely high. The validity of the presented analysis and the conclusions reached are checked experimentally.