

Andrzej POPENDA

## ANALYSIS OF INFLUENCE OF INPUT QUANTITIES AND DISTURBANCES ON GENERATOR OPERATION OF DOUBLY FED MACHINE

**ABSTRACT** *The control strategy for a DFM-based generator developed by the author as well as examples of time-dependencies measured with the application of laboratory stand are presented in the paper. The differential equations and flux-current dependencies describing current controlled DFM as well as the Laplace transformation of the equations are also given. The operational transmittances of DFM for input quantities and disturbances are defined. The transient responses of DFM are determined on the basis of the defined operational transmittances. A delta function and a step function are taken into consideration as input functions. The derived operational transmittances of DFM allow for penetrating analysis of controlled structure and formulating the detailed conclusions.*

**Keywords:** *doubly fed machine, control system, operational calculus, transient responses analysis.*