

## **Digital modeling of gas turbines automatic control systems.**

*Ayuev B. I., Binko G.F., Gerasimov A. S., Gurikov O. V., Kasyanov S. E., Kupchikov T. V., Pavlushko S. A., Smirnov A. N., Sharov Yu. V., Sheskin E. B.*

The article describes the peculiarities of modeling of gas-turbine and combined-cycle power plants in the tasks of analysis of electromechanical transients and the dynamic stability of power plants. Examples of detailed dynamic models of gas turbine and combined cycle power units are given. The calculation results obtained with a simplified representation of the turbines of gas turbine and combined cycle power units and with a detailed simulation of the units and their control systems are compared. It is shown that the lack of detailed modeling of combined cycle gas and gas turbine power units can lead to quantitative and qualitatively unreliable results of the analysis of dynamic stability.

*Keywords: power unit model, combined-cycle plant, gas turbine unit, digital model, control system.*