Synthesis of a dynamic model of an electric power system based on input and output signal samples.

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High dimensions and complexity are the major characteristics of modern electrical grids and this makes it difficult to solve the problems of their identification and modeling. The paper proposes the method of Graph-analytical representation and structural transformation, recurrent with respect to the number of dedicated control channels of the electric power system, is proposed. A method of digital processing of signals based on spectral method with the application of Fourier transform is developed. Article proposes the measures for evaluation of linearity of the «input-output» signals.

Key words: electrical grid, frequency response, spectral method, the Fourier transform.