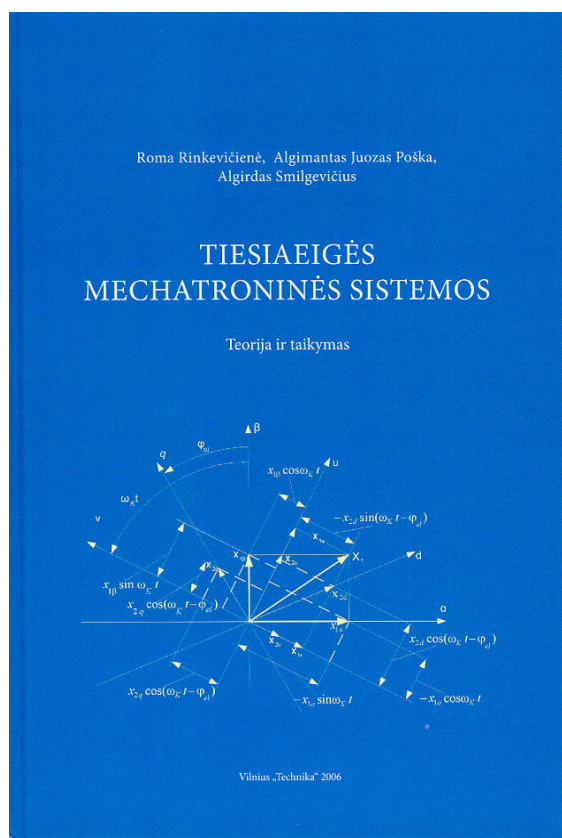


Referee Review on a Monograph

Roma Rinkevičienė, Algimantas Juozas Poška, Algirdas Smilgevičius. „Mechatronic Systems with Linear Induction Motors. Theory and Application“

Vilnius Gediminas Technical University, Vilnius: Technika, 2006, 224 p., illustr. 117, tables 7, bibliography 103, appendixes 10.



On the threshold of 2006 – 2007 the VGTU publishing office “Technika” published a new monograph MECHATRONICS SYSTEMS WITH LINEAR INDUCTION MOTORS prepared by professors of Vilnius Gediminas Technical University Roma Rinkevičienė, Algimantas Juozas Poška and Algirdas Smilgevičius. The monograph considers steady state and dynamic modes of mechatronic systems with linear induction motors (LIM) from the complex point of view. Considerable attention is paid to the analysis of problems of control of these systems with electronic power converters as well as to the problems of creating software and computer models. The examples of mechatronic systems with linear induction motors

developed on the basis of research and investigations are presented. Among them are fire and explosions localizing systems, used in corn processing enterprises (elevators, mills, and combined fodder enterprises) as well as automatic phase to ground short circuit fault detection systems used in high voltage network with the isolated neutral.

The supplement of the monograph with computer programs developed by the authors is useful for designers of new mechatronic systems, exploiters of implemented systems and students of universities, engaged in electrical engineering and other study programmes in Bachelor studies or Master studies as well as in PhD studies.

The monograph MECHATRONICS SYSTEMS WITH LINEAR INDUCTION MOTORS states that a scientific school of mechatronic systems with linear induction motors has been established in Lithuania, in which four Habil. Doctoral dissertations and ten Doctoral dissertations have been defended. At the beginning of the monograph, where the problems of linear induction motors breaking are considered, the original modes of breaking are presented. The author invention law protects these solutions. Some of them are based on specific LIM features and cannot be applied for rotational movement drives. The monograph presents an important method of calculation of non-stationary LIM operation considering the influence of motor acceleration on its characteristics.

The monograph is also remarkable for the presented different research methods applied to mechatronic systems: from spectral analysis to computer modeling, each of which is based on comprehensive consideration of assumptions simplifying the problem.

As a new approach in the monograph, the solution of problem of investigation of set of LIM parameters is presented.

Moreover, the monograph contains some shortcomings, for example, the area of the LIM breaking mode application is not defined; Fig. 4.10 presents the old thyristor switching circuit; in the paragraph 3.2, devoted to consideration of dynamics, an assumption about the absence of the end and edge effects is made, but the

information about investigations, considering these effects, is not given.

All these shortcomings are not significant. Considering the comprehensive range of solved problems, a variety of applied methods and algorithms, proving the theoretical results by experiments and application of developed mechatronic systems, it can be stated that the monograph reflects the original and completed research stage.

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