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## EMPLOYEE TURNOVER: REVIEW OF THE PROBLEM. PART 1. ECONOMIC AND MATHEMATICAL MODELS OF TOP MANAGEMENT TURNOVER. . . . . 2

**A.R. Kadyrova**

The paper presents a literature review on employee turnover. Analysis of 26 papers allowed to present various models revealing, firstly, reasons for turnover, and, secondly, consequences of turnover. The unequal distribution of the researches on turnover with the shift to Europe and the US is highlighted. The features that distinguish the turnover among different countries, industries and companies types are mentioned. Finally, the conclusions on the perspectives of the research domain development and possible ways of future researches are made.

**Keywords:** employees turnover, top-management turnover.

## SOLUTION OF OPTIMAL CONTROL PROBLEMS UNDER PIECEWISE CONSTANT, PIECEWISE LINEAR, AND PIECEWISE GIVEN ON A CLASS OF FUNCTIONS CONTROL ACTIONS . . . . . 13

**A.B. Rahimov**

Optimal control problems for objects described by ordinary differential equations system on the classes of piecewise constant, piecewise linear, and piecewise given control functions are considered. Both the piecewise constant values of the coefficients participating in the expression of controls as well as the boundaries of constancy intervals of these values are optimized. Analytic formulas for the gradient of the functional on the optimized parameters are obtained. These formulas allow using efficient first order optimization methods to solve the problems numerically. Results of numerical experiments are given.

**Keywords:** control problem, gradient of functional, concentrated parameters system, maximum principle, piecewise constant control, piecewise linear control, piecewise given control, constancy interval of control.

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**V.S. Kedrin, O.V. Kuzmin**

The paper considers methods for derivation of the recurrent relations of additive sequences for periodic functions. The promising algorithm of derivation of recurrence relations for recovery of additive sequences of periodic functions, as well as for more complex sequences of a class of periodic functions is proposed.

**Keywords:** time series, periodic function, recurrence relation,  $Z$  transformation.

## MOBILE OBJECT EVASION FROM DETECTION BY A SYSTEM OF HETEROGENEOUS OBSERVERS IN THREAT ENVIRONMENT . . . . . 31

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and V.P. Yakhno**

Formalization and solution of the problem of a mobile object evasion from detection by a system of stationary heterogeneous observers are proposed. Observers detect the object using signals of primary (passive regime) and reradiated secondary (active regime) fields.

**Keywords:** detection of a mobile object; system of heterogeneous observers; optimal evasion control law.

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**V.O. Korepanov, D.A. Novikov**

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**Keywords:** the diffuse bomb problem, strategic behavior, reflection, strategic levels game (games of rank).

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The paper presents the algorithm for generating the set of conflict-free trajectories of relief obstacles fly-around from an arbitrary initial position in the specified synchronization point with the aircraft in front. The algorithm of calculating the speed of motion along the generated trajectory that provides the performance of the specified norms of longitudinal separation in the synchronization point is presented.

**Keywords:** flight safety, terrain, conflict-free trajectory, synchronization point of flights, longitudinal separation.

## PUBLIC ADMINISTRATION OF HEALTH AND QUALITY OF LIFE. PART 1. OBJECT, SUBJECTS, DUTIES AND RESPONSIBILITY . . . . . 52

**L.A. Dartau**

The paper presents the control theory analysis of Russian people health public administration. It substantiates the necessity to expand this activity by including a direct health control process in a context of State-Society partnership in order to maximize possible level of individual health and citizen's responsibility for the outcome.

**Keywords:** health phenomenon, quality of life, health control process.

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**D.S. Sizykh, N.V. Sizykh**

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**Keywords:** matrix balance, modular balance of company, distribution plan, the method of «north—west corner» for express evaluation of the company financial condition.

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**A.V. Edelev, S.M. Senderov, N.L. Pyatkova**

The paper describes the use of geographic information system to address the range of issues that arise in the analysis of results of simulation of long-term development of the fuel and energy complex. The feature of visual assessment of a country energy sector condition at a certain moment of time on the basis of a set of maps associated with the energy systems which are the parts of fuel and energy complex is demonstrated. The principles of displaying the Energy system as an energy resource distribution network are proposed. The software for comprehensive analysis of the structure and interregional relations between energy sectors in various scenarios with regard to the requirements of energy security and environmental constraints is developed.

**Keywords:** energy security, software, fuel and energy complex, model, geographic information system.

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