

## THE COMPARATIVE ANALYSIS OF REGULARIZATION METHODS APPLICATION FOR THE PROCESSING OF INCOSISTENT EXPERT EVALUATIONS IN EDUCATION

Prof. Dr. Sharif E. GUSEYNOV  
Institute of Mathematical Sciences  
and Information Technologies  
University of Liepaja  
and  
Transport and Telecommunication Institute  
Liepaja- Riga, LATVIA

Dr. Alexander V. BEREZHNOY  
Institute of Mathematical Sciences  
and Information Technologies  
University of Liepaja  
and  
Institute of Aviation, Riga Technical University  
Liepaja- Riga, LATVIA

Assoc. Prof. Dr. Shirmail G. BAGIROV  
Department of Mechanics and Mathematics  
Baku State University  
Baku, AZERBAIJAN

Boris L. REZVY  
Institute of Mathematical Sciences  
and Information Technologies  
University of Liepaja  
Liepaja, LATVIA

### ABSTRACT

Present paper is focused on the study of stability issues for some "traditional" models aimed at analysis of expert evaluations. It is demonstrated that estimation of the complex indicator true value for each student in the space of characteristics is dependent on the stable inverted transformation of the initial data matrix, and which is commonly regarded to be an ill-conditioned matrix: for obtaining of regularized solution it is considered a classical Tikhonov regularization method applying the traditional approaches to the optimal regularization parameter selection. There are shown the shortcomings of those traditional approaches, and proposed a principal new approach to determination of optimal regularization parameter. For finding the residual (as well as for the obtained optimal regularization parameter) between the normal pseudosolution and solution based on the developed method there are obtained the upper estimates, and based on the obtained evaluation it is proved both convergence property of the found regularized solution to the normal pseudosolution and the fact that proposed method is inducing the Tikhonov regularizing operator.

**Key Words:** Mathematical model, expert assessments, objectivity, coherence, Tikhonov regularization method, normal pseudosolution, regularized solution.