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Special Issue

**Numerical Analysis for Boundary Value Problems
with Nonlocal Conditions**

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Kuriame Lietuvos ateitį

Preface

This Special Issue of Nonlinear Analysis: Modelling and Control is dedicated to Professor Mifodijus Sapagovas 75th Anniversary. Prof. Sapagovas is known as a progenitor of the researches of numerical analysis in Lithuania (see http://www.yrasalis.lt). The main interests of his investigations are the numerical methods in the theory of differential equations and the mathematical modeling as well. He has published on these subjects about 140 scientific articles and several scientific books and textbooks. The results obtained by Prof. Sapagovas in these areas are well known in many countries and are widely cited by many researches not only in mathematics but in the adjacent scientific branches, too.

First important investigations of Prof. Sapagovas are related with the finite difference methods for quasi-linear elliptic equations. He justified and developed the method of high-order finite difference schemes for the boundary value problems to the equations of mentioned type. The results obtained in this area were successfully applied by him in a development of numerical methods in the theory of minimal surfaces.

About 1977, Prof. Sapagovas started a new research trend. He, jointly with his scholars, undertook the investigations of numerical methods for differential equations with the nonlocal conditions. It seems that a reason of these new researches were a scientific debate with the physicians on the problems of nonlinear diffusion in the semiconductor materials and on the problems in the constructing of the liquid-metal contacts. Anyhow there emerges in Lithuania the numerical analysis for the differential equations with nonlocal conditions through the endeavor of Prof. Sapagovas. There were defended six PhD theses on this subject under scientific supervision of him. Currently, about twenty researches elaborate the investigations in this area in Lithuania.

From 2005 Prof. Sapagovas took up a new topic. He, jointly with Prof. Artūras Štikonas, began the researches on the subject of eigenvalue problem for the differential and difference operators with nonlocal conditions. They obtained the new results of the stability of the difference schemes for parabolic and pseudo-parabolic equations with nonlocal conditions and investigated the convergence of iterative methods for various nonlocal problems to the difference equations.

Prof. Sapagovas gave one's attention in his scientific organizing activity to Institute of Mathematics and Informatics (below it called as IMI). From 1995 till 2005 he was the director of this institute and cared very much together with previous director Prof. Vytautas Statulevičius about the scientific level and for a perspective of IMI as well. Prof. Sapagovas works now as a head researcher in the Numerical Analysis Department of IMI, which is incorporated from 2010 into Vilnius University as a subdivision. Also, he as a professor continues successfully a pedagogical activity at Vytautas Magnus University in Kaunas.

We wish Professor Sapagovas good health, happiness and many years of continued research activity.

Prof. Feliksas Ivanauskas
Prof. Stasys Rutkauskas