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Asen L. Dontchev
(on the occasion of his 65th birthday)
and
Vladimir M. Veliov
(on the occasion of his 60th birthday)

Professor Asen L. Dontchev and Professor Vladimir M. Veliov are two outstanding Bulgarian mathematicians, who have obtained fundamental results in the set-valued analysis, in the approximation theory, in the mathematical control theory and have worked on numerous nontrivial important applications.



Asen Dontchev received successively M.Sc. (in 1971) and Ph.D. (in 1974) in Control Sciences from the Warsaw University of Technology. After his graduation he began working at the Department of Operations Research of the Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences. He became “Doctor of Mathematical Sciences” in 1987 and soon after that – full Professor. Since 1990 he has been Associate Editor at Mathematical Reviews and since 2000 – Adjunct Professor at the University of Michigan. From 2007 till 2009 he was acting as a Program Director of the Analysis Program, DMS of the US National Science Foundation. Since 2009 Dontchev’s research has been

funded by the National Science Foundation (USA). He has supervised six Bulgarian, one Spanish and one Guinea Ph.D. students. Asen Dontchev has about 130 publications, including three books (published by Springer, one of which was translated into Russian) and three textbooks. According to Google Scholar his works are cited more than 3700 times, and according to MathSciNet more than 1200 times by more than 500 authors (since 2000). He is member of the editorial boards of the following international journals: *Serdica Mathematical Journal*, *Computational Optimization and Applications*, *SIAM Journal on Optimization* (till 2009), *Journal of Dynamical and Control Systems*, *SIAM Journal on Control and Optimization*, *Open Journal of Applied Mathematics*, *Journal of Industrial and Managerial Optimization* (till 2009), *Mathematica Balkanica*, *Journal of Mathematical Analysis and Applications*, *Journal of Optimization Theory and Applications*.



Professor Vladimir M. Veliov graduated the Sofia University “St. Kliment Ohridski” in 1978 and received a Ph.D. in 1983 with a thesis on optimal control in the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences. From 1987 till 1993 he has been working as research scholar at

the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria. After that he was appointed as Visiting Professor at the Institute of Applied and Numerical Mathematics, Vienna University of Technology, Austria; in the Institute of Applied Mathematics of the University of Bayreuth, Germany; and in the University de Bretagne Occidentale, Brest, France. In 2008 he became full professor at the Vienna University of Technology. Professor Vladimir M. Veliov published more than 80 peer reviewed papers in leading international journals and scientific periodicals, 33 book chapters and papers in proceedings. According to Google Scholar his works are cited more than 1600 times, and according to MathSciNet more than 300 times by more than 250 authors (since 2000). Also, he is member of the editorial boards of the following international journals: *Journal of Optimization Theory and Applications*, *Mathematical Social Scientists*, *Central European Journal of Mathematics*, *Journal of Industrial and Management Optimization* (till 2012), *Dynamics of Continuous, Discrete & Impulsive Systems (B)*, *Communications in Optimization Theory*.

Vladimir Veliov has worked on a number of projects financed by the Austrian Science Foundation and the Austrian National Bank (in 4 of them as principle investigator) in the field of dynamic modeling, analysis and optimization in economics and epidemiology.

The main research achievements of A. Dontchev can be summarized as follows: Derivation of sharp error estimates for discrete approximation of an optimal control problem with state and control constraints [21]; Finding the limit of the reachable set for a singularly perturbed control system with control constraints (with V. Veliov) [23]; Estimation of the error in discretized differential inclusions (with E. Farhi) [41]; Characterizations of strong regularity for variational inequalities over polyhedral convex sets (with R. T. Rockafellar) [67]; Proving quadratic onvergence of Newton's method for convex best interpolation (with H. Qi and L. Qi) [81]; Finding a formula for the radius of metric regularity (with A. Lewis and R. T Rockafellar) [92]; Extending Lyustrnik-Graves and Bartle-Graves theorems to set-valued mappings [60, 96, 101, 109].

The main research achievements of V. Veliov can be summarized as follows: Finding the correct limit behavior of singularly perturbed control systems and the correct limit problem for singularly perturbed optimal control problems ([38, 41] with A. Dontchev, and [61, 66]); Second and higher order discrete approximations to control-constrained optimal control problems ([53, 56, 64]); Proximal characterization of the weak invariance with respect to a differential inclusion and its consequences in optimal control and stabilization ([59, 63, 67]); Introduction and characterization of "viability with a target" and applications for control of

uncertain systems ([18, 84] with M. Quincampoix); Error analysis and stability of bang-bang optimal control problems ([88], and [115] with M. Quincampoix).

This volume contains original research papers and is dedicated to the 65th anniversary of Professor Asen L. Dontchev and to the 60th anniversary of Professor Vladimir M. Veliov.

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