

## ***Numerical Pitfalls in the Solution of Computational Control Problems***

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### ***Biography:***

Mihail Konstantinov has his Ph.D. in mathematics. He is a professor in mathematics and vice chancellor of the University of Architecture, Civil Engineering and Geodesy in Sofia. His main research interests are in the theory of differential equations, optimal control and perturbation analysis of operator equations and decompositions. He has published about 500 scientific papers and 25 books and has participated in more than 200 conferences and congresses in the above-mentioned areas. He is also a vice-chair of the Central Election Commission of Bulgaria and president of the Bulgarian Institute of Analyses and Research.

### ***Abstract:***

In this presentation we consider possible catastrophic effects of improper use of finite machine arithmetic in computational control problems. Unfortunately, this topic is not well understood even by students in applied and computational mathematics. The situation in control engineering is by no means better. To overcome this gap we describe the main reasons for loss of accuracy in numerical computer calculations with emphasis on computations in control. Numerical examples in MATLAB environment illustrate the main results.