

In July 2016 I had a great pleasure to present our paper “Robust Pole Assignment Via Routh Rays of Polynomials” on the American Control Conference (ACC 2016) in Boston,



Massachusetts, USA.

The ACC is the annual conference of the American Automatic Control Council (the U.S. national member organization of the International Federation for Automatic Control (IFAC)). The ACC is internationally recognized as a premier scientific and engineering conference dedicated to the advancement of control theory and practice. The ACC brings together an international community of researchers and practitioners to discuss the latest findings in automatic control.



On the ACC conference I was introducing the result of the research done by me, Ülo Nurges and Juri Belikov in a paper “Robust Pole Assignment Via Routh Rays of Polynomials”. The paper presents a constructive procedure for robust output controller design for continuous-time linear systems. The approach is based on a new stability criterion for Hurwitz polynomials - so-called reduced Routh parameters. These parameters are used to derive stable Routh rays and corresponding Routh cones of polynomials (polyhedral Routh cones), which approximate stability domain. The obtained region is used to design a fixed-order controller. The procedures of pole placement and robust controller synthesis are described and summarized in the form of step-by-step algorithm. Our theoretical results are illustrated by academic examples as well as a laboratory prototype of a DC motor servo system.

Igor Artemtšuk 2016.