

# 学术报告会

时 间：2019年11月21日(周四)上午10:00-11:00

地 点：电信群楼2-406

## Minkowski, Lyapunov, and Bellman: Inequalities and Equations for Stability and Optimal Control

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### Abstract:

The algebraic Lyapunov and Bellman equations, and inequalities, are cornerstone objects in linear systems theory. These equations, and inequalities, are concerned with convex quadratic functions verifying stability in case of Lyapunov equation and providing optimality in case of Bellman equation. Rather peculiarly, very little had been known about Lyapunov and Bellman equations, and inequalities, within space of Minkowski functions of nonempty convex compact subsets containing the origin in their interior prior to my work in the area. Key results of my related research on these fundamental problems have provided characterization of solutions to both Lyapunov and Bellman equations within space of Minkowski functions, referred to as the Minkowski{Lyapunov and Minkowski{Bellman equations. The talk outlines key results underpinning these two fundamental equations and related inequalities, and draws parallel to classical results on algebraic Lyapunov and Bellman equations and inequalities.

### Biography:

Saša V. Raković received the PhD degree in Control Theory from Imperial College London. His PhD research was awarded the Eryl Cadwaladr Davies Prize 2005 as the best PhD thesis in the EEE Department of Imperial College. He has been affiliated with a number of universities worldwide, including, inter alia, Imperial College London, ETH Zürich and Oxford University. He is currently a professor with the School of Automation at Beijing Institute of Technology. Saša V. Raković's main interests and contributions lie within the areas of synthesis of control systems, analysis of dynamical systems, and decision making under constraints and uncertainty. Saša V. Raković is best known for his pioneering research on tube model predictive control, and his work is published in top journals and it is highly cited. Saša V. Raković has also edited, with William S. Levine, a highly popular "Handbook of Model Predictive Control" published by Springer Nature.