Contributions to Game Theory and Management, X, 5–6

# Preface

This edited volume contains a selection of papers that are an outgrowth of the Tenth International Conference on Game Theory and Management with a few additional contributed papers. These papers present an outlook of the current development of theory of games and its applications to management and various domains, in particular, finance, mechanism design, environment and economics.

The International Conference on Game Theory and Management, a three day conference, was held in Saint Petersburg, Russia in July 7-9, 2016. The conference was organized by St. Petersburg State University in collaboration with The International Society of Dynamic Games (Russian Chapter). 86 participants from 22 countries had an opportunity to hear state-of-the-art presentations on a wide range of game-theoretic models, both theory and management applications.

Plenary lectures covered different areas of games and management applications. They had been delivered by Professor Jean-Jacques Herings, School of Business and Economics, Maastricht University (The Netherlands); Professor Eric Maskin (Nobel Prize in Economics), Department of Economics, Harvard University (USA); Professor Eilon Solan, School of Mathematical Sciences, Tel Aviv University (Israel); Professor Alexander Tarasyev, Department of Dynamic Systems, Institute of Mathematics and Mechanics, RAS, Ekaterinburg (Russia).

The importance of strategic behavior in the human and social world is increasingly recognized in theory and practice. As a result, game theory has emerged as a fundamental instrument in pure and applied research. The discipline of game theory studies decision making in an interactive environment. It draws on mathematics, statistics, operations research, engineering, biology, economics, political science and other subjects. In canonical form, a game takes place when an individual pursues an objective(s) in a situation in which other individuals concurrently pursue other (possibly conflicting, possibly overlapping) objectives and in the same time the objectives cannot be reached by individual actions of one decision maker. The problem is then to determine each individual's optimal decision, how these decisions interact to produce equilibrium, and the properties of such outcomes. The foundations of game theory were laid more than seventy years ago by von Neumann and Morgenstern (1944).

Theoretical research and applications in games are proceeding apace, in areas ranging from aircraft and missile control to inventory management, market development, natural resources extraction, competition policy, negotiation techniques, macroeconomic and environmental planning, capital accumulation and investment.

In all these areas, game theory is perhaps the most sophisticated and fertile paradigm applied mathematics can offer to study and analyze decision making under real world conditions. The papers presented at this Tenth International Conference on Game Theory and Management certainly reflect both the maturity and the vitality of modern day game theory and management science in general, and of dynamic games, in particular. The maturity can be seen from the sophistication of the theorems, proofs, methods and numerical algorithms contained in the most of the papers in these contributions. The vitality is manifested by the range of new ideas, new applications, the growing number of young researchers and the expanding

world wide coverage of research centers and institutes from whence the contributions originated.

The contributions demonstrate that GTM2016 offers an interactive program on wide range of latest developments in game theory and management. It includes recent advances in topics with high future potential and exiting developments in classical fields.

We thank Anna Tur from the Faculty of Applied Mathematics (SPbSU) for displaying extreme patience typesetting the manuscript.

Editors, Leon A. Petrosyan and Nikolay A. Zenkevich