Contents

Preface ............................................................................................................................. ix
Contributors ..................................................................................................................... xi

PART I Dynamic-Differential Games: Theoretical Developments

On Differential Games with Long-Time-Average Cost ......................... 3
Martino Bardi

Fields of Extremals and Sufficient Conditions for a Class
of Variational Games ................................................................. 19
Dean Carlson

Linear Quadratic Differential Games: An Overview ................. 37
Jacob Engwerda

A Neumann Boundary Control for Multidimensional
Parabolic “Minmax” Control Problems ..................................... 71
Andrzej Nowakowski

Non-Cooperative and Semi-Cooperative Differential Games .......... 85
Wen Shen

PART II Pursuit-Evasion (P-E) Games

Some Geometrical Properties of the Phase Space Structure
in Games on Manifolds ................................................................. 107
Andrei Akhmetzhanov

Strategies for Alternative Pursuit Games ..................................... 121
Igor Shevchenko

Some Sufficient Conditions for Multi-Player Pursuit-Evasion Games
with Continuous and Discrete Observations ................................. 133
Dušan M. Stipanović, Arik Melikyan and Naira Hovakimyan
PART III  Numerical Approaches to Dynamic-Differential Games

A Numerical Approach to the ‘Princess and Monster’ Game on an Interval ................................................................. 149
Steve Alpern, Robbert Fokkink, Roy Lindelauf and Geert Jan Olsder

Numerical Approximation and Optimal Strategies for Differential Games with Lack of Information on One Side ................. 159
Pierre Cardaliaguet

Fully-Discrete Schemes for the Value Function of Pursuit-Evasion Games with State Constraints .............................. 177
Emiliano Cristiani and Maurizio Falcone

Numerical Solution of the Game of Two Cars with a Neurosimulator and Grid Computing ................................. 207
Hans-Jörg von Mettenheim and Michael H. Breitner

Numerical Investigation of the Value Function for the Homicidal Chauffeur Problem with a More Agile Pursuer ............ 231
Valerii S. Patsko and Varvara L. Turova

PART IV  Applications

Credible Linear-Incentive Equilibrium Strategies in Linear-Quadratic Differential Games .................................... 261
Guiomar Martín-Herrán and Georges Zaccour

Robust Control Approach to Digital Option Pricing: Synthesis Approach ............................................................. 293
Stéphane Thiery, Pierre Bernhard and Geert Jan Olsder

PART V  Search Games

A Search Game with a Strategy of Energy Supply for Target ............ 313
Ryusuke Hohzaki and Keiko Ikeda
PART VI  Evolutionary Games

Is Deterrence Evolutionarily Stable? ........................................ 357
David Ellison and Michel Rudnianski

Evolutionarily Robust Strategies: Two Nontrivial Examples
and a Theorem ........................................................ 377
A. J. Shaiju and Pierre Bernhard

PART VII  Stopping Games

Nash Equilibrium in a Game Version of the Elfving Problem ........... 399
Elżbieta Z. Ferenstein and Anna Krasnosielska

Cooperative Strategies in Stopping Games ................................ 415
David Ramsey and Diana Cierpiał

PART VIII  Stochastic Games and
Large “Neighborhood” Games

Pure Equilibrium Strategies for Stochastic Games
via Potential Functions ..................................................... 433
Jos A.M. Potters, T.E.S. Raghavan and Stef H. Tijs

Fibonacci Numbers and Equilibria in Large
“Neighborhood” Games ................................................. 445
Andrzej Wieczorek
Advances in Dynamic Games and Their Applications
Analytical and Numerical Developments
Bernhard, P.; Gaitsgory, V.; Pourtallier, O. (Eds.)
2009, XIV, 462 p. 94 illus., 9 illus. in color., Hardcover
ISBN: 978-0-8176-4833-6
A product of Birkhäuser Basel