

The 14th International Conference on Game Theory and Management” (GTM2020)

05-09 October 2020
Saint Petersburg, Russia

Organized by
Saint Petersburg State University
and
The International Society of Dynamic Games

Saint Petersburg State University
Volkhovsky per., 3, St. Petersburg, Russia

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Program
Saint Petersburg State University,
St. Petersburg, Russia

Monday, October 05	
16:45–17:00	WELCOME ADDRESS
17:00–18:00	PLENARY TALK (1)
18:10–19:50	PARALLEL SESSIONS (M1)
Tuesday, October 06	
10:00–11:00	PLENARY TALK (2)
11:10–12:50	PARALLEL SESSIONS (T1)
17:00–19:30	PARALLEL SESSIONS (T2)
Wednesday, October 07	
10:00–11:00	PLENARY TALK (3)
11:10–13:15	PARALLEL SESSIONS (W1)
17:00–19:30	PARALLEL SESSIONS (W2)
Thursday, October 08	
10:00–12:55	PARALLEL SESSIONS (T1)
17:00–18:00	PLENARY TALK (4)
18:10–19:50	PARALLEL SESSIONS (T2)
Friday, October 09	
10:00–12:30	PARALLEL SESSIONS (F1)
12:40–13:00	CLOSING SESSION

Monday, October 05

16:45–17:00 **WELCOME ADDRESS**
Co-chairs – Leon Petrosyan and Nikolay Zenkevich

17:00–18:00 **PLENARY 1**
Chair – Leon Petrosyan

Javier de Frutos, Valladolid University (Spain)
"Spatial effects and strategic behavior in transboundary pollution dynamic games"

18:10–19:50 **M1: PARALLEL SESSIONS**

DGA-1: Dynamic Games and Applications – 1
Chair – Anna Tur

18:10–18:35 **Kirill Shchelchkov**
Guaranteed capture time in nonlinear pursuit problem

18:35–19:00 **Zou Jinying**, Petrosian Ovanes and Xu Feiran
Explainable AI technology Based on Dynamic Cooperative Games

19:00–19:25 **Aleksandra Grinikh** and **Leon Petrosyan**
Multistage n -person Prisoner Dilemma

19:25–19:50 **Ovanes Petrosian** and **Anna Tur**
Pontryagin's Maximum Principle for non-cooperative differential games with continuous updating

GTMA-1: Game Theory and Management Applications – 1
Chair – Henrique Zaidan

18:10–18.35 **Movlatkhan Agieva** and **Olga Gorbaneva**
Dynamic linear spice-model of resource allocation in marketing networks

18:35–19:00 **Igor Konnov**
Decomposable Penalty Method for Generalized Game Problems with Joint Constraints

19:00–19:25 **Alexander Sidorov**
Spill-Over Effect of Oligopolization in Mixed Industry

19:25–19:50 **Maryam Esmaeili** and Henrique Zaidan
Optimal selling price, warranty length and purchase time for combination warranty policy: A game theory approach

Tuesday, October 06

10:00–11:00

PLENARY 2

Chair – Vladimir Mazalov

Rene van den Brink, Vrije Amsterdam University (Netherlands)
“Networks, Communication and Hierarchy: Applications to Cooperative Games”

11:10–12:50

T1: PARALLEL SESSIONS

GTP: Game Theory Problems

Chair – Denis Fedyanin

11:10–11:35 **Zoltan Mako**

The role of preference orderings in the definition of equilibriums

11:35–12:00 Agaowa Bai, **Batbileg Sukhee** and Enkhbat Rentsen
D.C. Optimization Approach for Finding Berge Equilibrium

12:00–12:25 **Julia Salamon**

Strong equilibriums of interval valued bimatrix games

12:25–12:50 **Denis Fedyanin**

Ordering in games with reduced memory and planning horizon of players

GTMA-2: Game Theory and Management Applications – 2

Chair – Olga Gorbaneva

11:10–11:35 Peter Biro, Walter Kern, **Domotor Palvolgyi** and Daniel Paulusma

Generalized Matching Games for International Kidney Exchange

11:35–12:00 **Vasily Gusev**

Vertex cover game

12:00–12:25 **Aram Grigoryan**

School Choice and Housing Market

12:25–12:50 **Olga Gorbaneva**, Tatyana Anopchenko and Anton Murzin

The management of interregional industrial cooperation as a tool to maximizing the specific consumption of the macroregion

17:00–19:30

T2: PARALLEL SESSIONS

DGA-2: Dynamic Games and Applications – 2

Chair – Ekaterina Gromova

17:00–17:25 **Abdulla Azamov** and Tulanboy Ibaydullayev
Pursuit-Evasion Game on a Tetrahedron and Π -strategy for a slow Pursuer

17:25–17:50 **Azamat Holboyev**
Pursuit-Evasion Game on the 1-skeleton of Semi-regular Polyhedron in the space R^3

17:50–18:15 Vladislav Taynitskiy, **Elena Gubar**, **Denis Fedyanin** and **Ilya Petrov**
Epidemic model on structured population: diffusion patterns and control policies.

18:15–18:40 **Anastasiya Malakhova** and Natalya Magnitskaya
Open-loop Nash equilibrium in the stocks investment differential game with a random time horizon based on the discontinuous distribution

18:40–19:05 **Anatolii Kleimenov**
A Hybrid Two-Stage Dynamic Control System with Three Participants and Behavior Types

19:05–19:30 **Ekaterina Gromova** and Ekaterina Marova
The effect of absorption in differential games of pollution control

GTMA-3: Game Theory and Management Applications – 3

Chair – Suriya Kumacheva

17:00–17:25 **Marcelo de C. Griebeler** and **Alexandre F. Damo**
Serving three masters: optimal monetary and regulatory policies when central bankers have career concerns

17:25–17:50 **Vitaly Okulov** and **Polina Zhilina**
Game-theoretic Modeling of Market Participants' Behavior: Case of Russian Adjustable-Rate Bonds with Puts

17:50–18:15 **Georgii Aleksandrov**
Employee Referral Programs: Always Good?

18:15–18:40 **Anna Tur** and **Polina Barsuk**
Cooperation and Competition in a One Local Pollution Control

18:40–19:05 **Ivan Orlov** and **Suriya Kumacheva**
Game-theoretical model of embezzlement

Wednesday, October 07

10:00–11:00 **PLENARY 3**
Chair – Nikolay Zenkevich

Yaroslav Sergeyev, University of Calabria (Italy), Lobachevsky
State University (Russia)
*“Numerical computations with infinities and infinitesimals:
Methodology and applications”*

11:10–13:15 **W1: PARALLEL SESSIONS**

DGA-3: Dynamic Games and Applications – 3
Chair – Ovanes Petrosian

11:10–11:35 **Nikolay Krasovskii** and Alexander Tarasyev
Construction of Value Functions in 2×3 Dynamic Bimatrix Games

11:35–12:00 Shilpi Bhattacharya, **Siddhartha Bhasker** and Sudip
Patra
*An evolutionary game theory model for rare disease GNE Myopathy
patients*

12:00–12:25 **Danisz Okulicz** and Andres Espita de la Hoz
Dynamics of Collective Litigation

12:25–12:50 **Mikhail Geraskin**
*Problems of Calculation Equilibria in Stackelberg Nonlinear
Duopoly*

12:50–13:15 **Zeyang Wang**
Differential Game of Resource Extraction with Continuous Updating

NDM: Numerical Decision Making
Chair – Marco Cococcioni

11:10–11:35 **Louis D'Alotto**
Infinite Games on Finite Graphs using Grossone

11:35–12:00 **Davide Rizza**
A new arithmetical approach to infinite decision-making processes

12:00–12:25 **Gianluca Caterina, Rocco Gangle** and Fernando Tohme
A relational framework for infinite epistemic states in common knowledge

12:25–12:50 **Marco Cococcioni** and **Lorenzo Fiaschi**
Non-Archimedean Risk Assessment and Non-Archimedean Cost-Benefit Analysis: Numerical Decision Making using the Infinity Computer

12:50–13:15 **Lorenzo Fiaschi** and **Marco Cococcioni**
Advances in Numerical Non-Archimedean Game Theory using the Infinity Computer

17:00–19:30 W2: PARALLEL SESSIONS

DGA-4: Dynamic Games and Applications – 4
Chair – Artem Sedakov

17:00–17:25 **Priyanka Joshi**
Fear of Exclusion and Dynamics of Club Formation

17:25–17:50 Movlatkhan Agieva, **Alexei Korolev** and **Gennady Ougolnitsky**
Game Theoretic Models of Opinion Control with Phase Constraints

17:50–18:15 **Yin Li**
The Dynamic Nash Bargaining Solution for 2-Stage Cost Sharing Game

18:15–18:40 **Alexander Mugayskikh** and Victor Zakharov
Cooperation in time-dependent vehicle routing problems

18:40–19:05 **Sergei Dotsenko**
On the stable mating routine in optimal blood testing problem

19:05–19:30 **Hao Sun** and Artem Sedakov
The relationship between the core and modified cores of a dynamic game

GTMA-4: Game Theory and Management Applications – 4
Chair – Valeriia Kuka

17:00–17:25 **Tizié Bene**, Yann Bramoullé and Frédéric Déroïan
Formal insurance and altruism networks

17:25–17:50 **Sudip Patra**

Quantum game theory: real life prisoner's dilemma and common knowledge

17:50–18:15 **Zaruhi Hakobyan** and Christos Koulovatianos

Populism and Polarization in Social Media Without Fake News: The Vicious Circle of Biases, Beliefs and Network Homophily

18:15–18:40 **Ilyass Dahmouni**

The Blue Paradox and the aquaculture fallacy: How to avoid the tragedy.

18:40–19:05 Henrique Zaidan, Claudio Cristino and **Maryam Esmaeili**

Maintenance outsourcing: a new look through game theory and stochastic optimization

19:05–19:30 **Valeriia Kuka**

Strategic voting: an approach based on incomplete information

Thursday, October 08

10:00–12:55 T1: PARALLEL SESSIONS

GTMA-5: Game Theory and Management Applications – 5

Chair – Anna Ivashko

10:00–10:25 **Natalia Aizenberg**

The problem of the "intermediate" consumer for tariff setting in the retail electricity market

10:25–10:50 Wenzhong Li, Genjiu Xu and **René van den Brink**

An optimization and axiomatization approach to the PD value and the PANSC value

10:50–11:15 **Rajeev Tripathi** and Prashant Chintapalli

Fair pricing on a platform with heterogeneous sellers

11:15–11:40 **Azamat Valei**

Informative Advertising and Heterogeneous Consumer Search in a Monopoly with Network Externalities

11:40–12:05 **Kangkan Devchoudhury** and Michael Kramm

Endogenous Valence Competition and Electoral Accountability

12:05–12:30 **Anna Ivashko**

Best-Choice Game with Incomplete Information: "The Voice" Show

NG: Network Games

Chair – Dmitrii Lozovanu

10:00–10:25 **Leon Petrosyan** and **David Kosian**

Games on networks with special types of payoffs

10:25–10:50 **Banchongsan Charoensook**

On the Interaction between Small Decay, Agent Heterogeneity and Diameter of Minimal Strict Nash Networks in Two-way Flow Model: A Note

10:50–11:15 **Banchongsan Charoensook**

A Note on Partner Heterogeneity and Strict Nash Networks

11:15–11:40 **Ilya Petrov**

Optimal control policies in games on stochastic networks

11:40–12:05 **Ping Sun** and **Elena Parilina**

Stochastic Network Formation Games with Finite Duration

12:05–12:30 **Suriya Kumacheva** and Galina Tomilina

Information Collection and Dissemination in the Network of Taxpayers: Bayesian Approach

12:30–12:55 **Dmitrii Lozovanu** and Stefan Pickl

Pure and Mixed Stationary Strategies for Mean Payoff Games on Networks

17:00–18:00

PLENARY 4

Chair – Leon Petrosyan

Sihem Taboubi, HEC Montréal (Canada)

"Conflict and Cooperation in Marketing Channels: A Game-Theoretic Perspective"

18:10–19:50

T2: PARALLEL SESSIONS

CSCSN: Collaboration in Supply Chain and Social Networks

Chair – Nikolay Zenkevich

18:10–18:35 Irina Berezinets, **Tatyana Voronova**, Nikolay Zenkevich and Natalia Nikolchenko
Coordinating Contracts as an Instrument of Supply Chain Profit Maximization under Short-Term Financing Necessity

18:35–19:00 **Anastasiia Ivakina**, Yana Kuzmina and Nikolay Zenkevich
Cooperative Working Capital Optimization with Supply Chain Finance

19:00–19:25 **Krzysztof Szajowski** and Kinga Włodarczyk
A measure of the importance of roads based on topography and traffic intensity

19:25–19:50 **Sajad Kazemi** and Nikolay Zenkevich
A Multidimensional Model for Leadership Assessment in Supply Chain Networks

MG: Multicriteria Games
Chair – Vladimir Mazalov

18:10–18:35 **Anna Rettieva**
Dynamic Multicriteria Games with Asymmetric Players

18:35–19:00 **Denis Kuzyutin** and Nadezhda Smirnova
Multistage multicriteria games with chance moves: Pareto equilibria and cooperation

19:00–19:25 **Denis Kuzyutin**, Ivan Lipko and **Yaroslavna Pankratova**
New algorithm of cooperation enforcing for multistage multicriteria game

19:25–19:50 **Vladimir Mazalov**
Stable coalition partition for coalition game with vector payments

Friday, October 09

10:00–12:30 F1: PARALLEL SESSIONS

CAN: Cooperation, allocation, and negotiation
Chair – Nikolay Korgin

10:00–10:25 **Hao Wu, René van den Brink**, Haiming Long and Arantza Estevez-Fernandez
Highway toll allocation

10:25–10:50 **Xia Zhang, René van den Brink**, Arantza Estévez-Fernández and Hao Sun
Individual weighted excess and least square values

10:50–11:15 **Natalia Naumova**
Computation problems for envy stable solutions of allocation problems with public resources.

11:15–11:40 Claus-Jochen Haake and **Thomas Streck**
Size matters: distortion of bargaining power

11:40–12:05 Liying Kang, **Anna Khmelnitskaya**, Erfang Shan, Dolf Talman and Guang Zhang
The average tree and the two-step average tree values for graph and hypergraph games

12:05–12:30 **Nikolay Korgin** and Vsevolod Korepanov
Nash bargaining solution as negotiation concept for resource allocation problem with Grovse-Ledyard mechanism

GTEA: Game Theory and Economic Applications
Chair – Igor Bykadorov

10:00–10:25 **Olivier Bos** and **Martin Pollrich**
Optimal Auctions with Signaling Bidders

10:25–10:50 Mukharbeck Malsagov, **Guennady Ougolnitsky** and Anatoly Usov
Dynamic SPICE-Models of the Promotion of Innovations and Struggle with Corruption

10:50–11:15 **Pavel Konyukhovskiy** and **Victoria Holodkova**
Cooperative Game Theory Methods in the Analysis of Economic and Political Interaction at the International Level

11:15–11:40 **Olga Kuznetsova**
Monopoly markets: a mathematical model of a tightly coupled system

11:40–12:05 **Péter Csóka** and P.Jean-Jacques Herings
Non-cooperative bargaining on debt restructuring

12:05–12:30 **Igor Bykadorov**

Equilibrium and Optimality in International Trade Models under Monopolistic Competition: the Unified Approach

12:40–13:00

CLOSING SESSION

Chair – Leon Petrosyan