

# The 15th International Conference on Game Theory and Management” (GTM2021)

23–25 June 2021  
Saint Petersburg, Russia

*Organized by*  
Saint Petersburg State University  
and  
The International Society of Dynamic Games  
(Russian Chapter)

*The GTM2021 conference will be held fully online as Zoom meeting.*

## Program Committee

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**Program**  
(Saint Petersburg time)

<b>Wednesday, June 23</b>	
09:45–10:00	<b>WELCOME ADDRESS</b>
10:00–11:00	<b>PLENARY TALK (1)</b>
11:00–11:15	<b>Break</b>
11:15–12:30	<b>PARALLEL SESSIONS (W1)</b>
12:30–14:00	<b>Break</b>
14:00–15:40	<b>PARALLEL SESSIONS (W2)</b>
15:40–16:00	<b>Break</b>
16:00–17:15	<b>PLENARY TALK (2)</b>
17:15–17:30	<b>Break</b>
17:30–18:45	<b>PARALLEL SESSIONS (W3)</b>
<b>Thursday, June 24</b>	
10:00–11:00	<b>PLENARY TALK (3)</b>
11:00–11:15	<b>Break</b>
11:15–12:30	<b>PARALLEL SESSIONS (T1)</b>
12:30–14:00	<b>Break</b>
14:00–15:40	<b>PARALLEL SESSIONS (T2)</b>
15:40–16:00	<b>Break</b>
16:00–17:40	<b>PARALLEL SESSIONS (T3)</b>
<b>Friday, June 25</b>	
10:00–11:00	<b>PLENARY TALK (4)</b>
11:00–11:15	<b>Break</b>
11:15–12:55	<b>PARALLEL SESSIONS (F1)</b>
12:55–14:00	<b>Break</b>
14:00–15:40	<b>PARALLEL SESSIONS (F2)</b>
15:40–16:00	<b>Break</b>
16:00–17:15	<b>PARALLEL SESSIONS (T3)</b>
17:15–17:30	<b>Break</b>
17:30–17:50	<b>CLOSING SESSION</b>

## Wednesday, June 23

**09:45–10:00**     **WELCOME ADDRESS**  
Co-chairs – Leon Petrosyan and Nikolay Zenkevich

**10:00–11:00**     **PLENARY 1**  
Chair – Leon Petrosyan

**Robert J. Aumann**, The Hebrew University of Jerusalem (Israel)  
*A Synthesis of Behavioral and Mainstream Economics*

**11:15–12:30**     **W1: PARALLEL SESSIONS**

**DGA-1: Dynamic Games and Applications – 1**  
Chair – Ekaterina Gromova

11:15–11:40 **Ekaterina Gromova** and Kirill Savin  
*Some general properties of the characteristic functions in cooperative games with negative externalities*

11:40–12:05 **Anastasiia Zarembo** and Natalia Magnitskaya  
*Time-consistency problem for hybrid cooperative differential games*

12:05–12:30 **Ekaterina Marova**  
*Superadditive extension of the characteristic function in cooperative differential games*

**GTMA-1: Game Theory and Management Applications – 1**  
Chair – Natalia Aizenberg

11:15–11:40 **Pavel Konyukhovskiy** and Victoria Holodkova  
*Application of the Bargaining Set Concept in the Analysis of Economic and Political Interaction at the International Level*

11:40–12:05 **Haipeng Han, Mingzhi Li** and **Jie Zheng**  
*Exclusive contracting and discriminatory pricing in two-sided markets*

12:05–12:30 **Natalia Aizenberg**  
*Optimal mechanism design for demand response manage in the retail electricity market*

## **AIN: Allocations in Networks**

Chair – Anna Kirpichnikova

11:15–11:40 **José-Manuel Giménez-Gómez, Josep E. Peris**  
*A claims problem approach to the cost allocation of a minimum cost spanning tree*

11:40–12:05 **Min Cheng and Yin Li**  
*New characteristic function for two-stage games with spanning tree*

12:05–12:30 **Sergei Kireev, Anna Kirpichnikova, Stewart Blakeway and Alina Lazareva**  
*Optimal solutions in game-theoretic approach to MANET performance optimization using Unmanned Aerial Vehicles*

## **14:00–15:40 W2: PARALLEL SESSIONS**

### **DGA-2: Dynamic Games and Applications – 2**

Chair – Igor Konnov

14:00–14:25 **Nina N. Subbotina and Evgeniy A. Krupennikov**  
*To the \*-weak solutions of inverse problems of the differential games theory*

14:25–14:50 **Aleksei Rodin**  
*On bifurcation points and the singular set of the value function in differential games with simple motions.*

14:50–15:15 **Lyubov Shagalova**  
*Piecewise linear value function in differential game with simple dynamics*

15:15–15:40 **Igor Konnov**  
*Dynamic games with incomplete knowledge in metric spaces*

### **GTMA-2: Game Theory and Management Applications – 2**

Chair – Nikolay Zenkevich

14:00–14:25 **Na Zuo**  
*Optimal contract for online display advertising market*

14:25–14:50 **Sudha Madhavi Dastrala and Rajeev R. Tripathi**  
*Pricing, revenue sharing and quality decisions in the internet value chain*

14:50–15:15 **Natalia Nikolchenko, Nikolay Zenkevich and Irina Berezinets**

*Motivation and companies' performance in supply networks with a combined topology*

15:15–15:40 **Anastasiia Ivakina, Maria Smirnova and Nikolay Zenkevich**

*Supply chain finance for working capital optimization with multiple goals*

**16:00–17:15**

**PLENARY 2**

Chair – Vladimir Mazalov

**Adam Tauman Kalai**, Microsoft Research New England (Cambridge, USA)

and **Ehud Kalai**, Kellogg School of Management (Northwestern University, USA)

*Nash to Dominant: the Natural Index of Strategic Stability*

**17:30–18:45**

**W3: PARALLEL SESSIONS**

**DGA-3: Dynamic Games and Applications – 3**

Chair – Nikolay Krasovskii

17:30–17:55 **Anatolii Kleimenov**

*An Example of a Hybrid Two-Stage Dynamic Control System with Three Participants and Phase Constraints*

17:55–18:20 **Dmitrii Lozovanu and Stefan Pickl**

*Determining Stationary Nash Equilibria for Average Single-Controller Stochastic Games*

18:20–18:45 **Nikolay Krasovskii and Alexander Tarasyev**

*Construction of equilibrium trajectories in 2x3 dynamic bimatrix games*

**GTMA-3: Game Theory and Management Applications – 3**

Chair – Igor Bykadorov

17:30–17:55 **Foroogh Salekpay**

*Distributing the European Union Greenhouse Gas emission 2030*

17:55–18:20 **Mikhail Geraskin** and **Olga Kuznetsova**  
*Analysis of companies integration interaction impact in a crisis economy, taking into account the additional effect obtained by all participants in the process*

18:20–18:45 **Igor Bykadorov**  
*Monopolistic competitive international trade model with investments in R&D*

### **IC: Innovations and Coordination**

Chair – Guennady Ougolnitsky

17:30–17:55 **Joakim Alderborn**  
*The impact of coordination in fiscal and monetary policy*

17:55–18:20 **Farzad Pourbabaee**  
*Reputation, innovation, and externalities in venture capital*

18:20–18:45 **Vassily Kalachev, Guennady Ougolnitsky** and **Anatoly Usov**  
*Difference Stackelberg game theoretic model of innovations management in universities*

## **Thursday, June 24**

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

**David W.K. Yeung**, Hong Kong Shue Yan University (Hong Kong)  
*Advances in Durable-strategies Dynamic Game Theory*

**11:15–12:30**      **T1: PARALLEL SESSIONS**

**DGA-4: Dynamic Games and Applications – 4**  
Chair – Igor Shevchenko

11:15–11:40 **Kirill Shchelchkov**  
*One-sided capture in nonlinear pursuit problem*

11:40–12:05 **Bahrom Samatov, Adahambek Akbarov** and **Ulmasjon Soyibboev**  
*Differencial games with the Gronwall type constraints on control*

12:05–12:30 **Igor Shevchenko**  
*Generating strategies for simple successive pursuit*

**GTMA-4: Game Theory and Management Applications – 4**  
Chair – Suriya Kumacheva

11:15–11.40 **Dan Wang and Yin Li**  
*Research on tax collection and management problems from the perspective of static game and repeated game*

11:40–12:05 **Kirill Kozlov, Guennady Ougolnitsky and Anatoly Usov**  
*Administrative and economic mechanisms of struggle with corruption in auctions*

12:05–12:30 **Ivan Orlov and Suriya Kumacheva**  
*Hierarchical model of corruption*

**14:00–15:40 T2: PARALLEL SESSIONS**

**CGA: Cooperative Games and Applications**  
Chair – Valery Vasilev

14:00–14:25 **M. Josune Albizuri, Satoshi Masuya and Jose M. Zarzuelo**  
*An Extension of the Shapley Value for partially defined cooperative games in partition function form*

14:25–14:50 **Xavier Molinero, Arm Laamiri and Fabián Riquelme**  
*Readability and power indices*

14:50–15:15 **Natalia Naumova**  
*Cooperative games with generalized excess functions*

15:15–15:40 **Valery Vasilev**  
*On Harsanyi extensions of almost positive TU cooperative games*

**GTMA-5: Game Theory and Management Applications – 5**  
Chair – Artem Baklanov

14:00–14:25 **George Yuan**  
*Mechanism of SME growth under the game behavior with strategic and nonstrategic partners*

14:25–14:50 **Rocío Botta, Christian E. Schaerer and Gerardo Blanco**

*Fractional punishment with redistribution in a compulsory public good game*

14:50–15:15 **Adriana Alventosa, Sílvia Ferreira Jorge, Joana Pinho, Margarida Catalão-Lopes, Cesaltina Pacheco Pires and Pedro Garcês**  
*Product differentiation and quality costs. An experiment*

15:15–15:40 **Artem Baklanov**  
*Equilibrium payoff profiles in reactive strategies*

**16:00–17:40 T3: PARALLEL SESSIONS**

**DGA-5: Dynamic Games and Applications – 5**  
Chair – Anna Tur

16:00–16:25 **Polina Barsuk and Ekaterina Gromova**  
*Support solutions in the core of cooperative differential game of pollution control*

16:25–16:50 **Andrea di Liddo**  
*Strategic interactions in counterfeiting and piracy models*

16:50–17:15 **Carles Mañó-Cabello, Jesús Marín-Solano and Jorge Navas**  
*What is my neighbour doing? Heterogeneous agents under free trade with renewable resources*

17:15–17:40 **Anna Tur and Leon Petrosyan**  
*Cooperative optimality principles in differential games on networks*

**GON: Games on Networks**  
Chair – Artem Sedakov

16:00–16:25 **Przemysław Siemaszko**  
*Global Games on Social Networks*

16:25–16:50 **Vladimir Mazalov**  
*Cooperative game solutions for network analysis*

16:50–17:15 **Fabián Riquelme, Rodrigo Olivares, Francisco Muñoz and Xavier Molinero**

*Approximate search for the length of an influence game using metaheuristics*

17:15–17:40 **Yulia Kareeva, Artem Sedakov and Mengke Zhen**

*Opinion dynamics in social networks: from competition to bargaining*

### **EGA: Evolutionary Games and Applications**

Chair – Vladislav Taynitskiy

16:00–16:25 **Mark Burgess**

*An equilibrium theorem in non-linear population matrix models*

16:25–16:50 **Ilyass Dahmouni and Elnaz Kanani Kuchesfehani**

*A dynamic SI model on the optimal time to self isolate during a pandemic*

16:50–17:15 **Suriya Kumacheva and Galina Tomilina**

*Information collection and dissemination in the network model of tax control*

17:15–17:40 **Vladislav Taynitskiy, Elena Gubar, Edgar J. Sanchez Carrera and Laura Policardo**

*Optimal lockdown policies driven by socioeconomic costs: targeted vs. uniform approaches*

## **Friday, June 25**

**10:00–11:00 PLENARY 4**

Chair – Elena Parilina

**Leon A. Petrosyan**, Saint Petersburg State University (Russia)

*Differential Games on Networks*

**11:15–12:55 F1: PARALLEL SESSIONS**

**DGA-6: Dynamic Games and Applications – 6**

Chair – Ovanes Petrosian

11:15–11:40 **Denis V. Kuzyutin, Nadezhda V. Smirnova and Julia V. Skorodumova**

*On the subgame-perfect core implementation in extensive-form games*

11:40–12:05 **Oleg Pavlov**

*Solution of the dynamic game incentive problems taking into account the learning curve effect*

12:05–12:30 **Zeyang Wang and Ovanes Petrosian**

*New and existing bargaining solutions for one resource extraction differential game*

## **GTMA-6: Game Theory and Management Applications – 6**

Chair – Rene van den Brink

11:15–11:40 **Aleksei Kondratev, Egor Ianovski and Alexander Nesterov**

*Geometric scoring rules*

11:40–12:05 **Simon Finster**

*Selling multiple complements with packaging costs*

12:05–12:30 **Somouaoga Bonkougou and Alexander Nesterov**

*Measuring manipulations in matching markets by counting manipulating agents*

12:30–12:55 **Rene van den Brink, Marina Nunez and Francisco Robles**

*Valuation monotonicity, fairness and stability in assignment problems*

## **14:00–15:40 F2: PARALLEL SESSIONS**

### **DGA-7: Dynamic Games and Applications – 7**

Chair – Anna Ivashko

14:00–14:25 **Olga I. Gorbaneva and Anton D. Murzin**

*Nash equilibrium in a dynamic regional SPICE-model*

14:25–14:50 **David Ramsey**

*A Game Theoretic Model of Searching for a Unique Good from a Large Set of Offers*

14:50–15:15 **Denis Fedyanin**

*A network approach to finding optimal strategies in interrogative games of agent classification*

15:15–15:40 **Anna Ivashko**

*Optimal stopping in the Balls-and-bins Game*

**GTMA-7: Game Theory and Management Applications – 7**

Chair – Vsevolod Korepanov

14:00–14:25 **Valeriia Kuka, Daria Teplova and Egor Ianovski**

*The social cost of strategic behavior*

14:25–14:50 **Egor Ianovski and Aleksei Kondratev**

*Computing, manipulating, and selecting from the veto core*

14:50–15:15 **Georgii Aleksandrov**

*Employee referral programs: always good?*

15:15–15:40 **Nikolay Korgin and Vsevolod Korepanov**

*Nash bargaining solution as negotiation concept for resource allocation problem – comparative analysis of different mechanisms*

**LIG: Learning in Games**

Chair – Eduardo Garcia Echeverri

14:00–14:25 **Wenji Xu**

*Social Learning in General Information Environments*

14:25–14:50 **Francisco Alvarez and Pablo del Rio**

*Is small always beautiful? Analyzing the efficiency effects of size heterogeneity in renewable electricity auctions*

14:50–15:15 **Marcelo de C. Griebeler**

*Fear of communism: a political theory of land reform in democracies*

15:15–15:40 **Eduardo Garcia Echeverri**

*Learning in games where agents sample*

**16:00–17:15**

**F3: PARALLEL SESSIONS**

**DGA-8: Dynamic Games and Applications – 8**

Chair – Anna Rettieva

16:00–16:25 **Ilyass Dahmouni** and **Ussif Rashid Sumaila**  
*A dynamic model for Fish banks*

16:25–16:50 **Steven Brams** and **Mehmet Ismail**  
*Fairer Chess: A Reversal of Two Opening Moves in Chess Creates Balance Between White and Black*

16:50–17:15 **Anna N. Rettieva**  
*Rationality conditions in dynamic multicriteria games*

**GTMA-8: Game Theory and Management Applications – 8**  
Chair – Julia Chirkova

16:00–16:25 **Sergei Balakin**  
*Application costs as a screening instrument in decentralized matching*

16:25–16:50 **Krzysztof J. Szajowski**  
*Location of disorders and the component's importance measures*

16:50–17:15 **Julia Chirkova**  
*Machine load balancing game with linear externalities*

**ESNS: Elections, Stable Networks and Structures**  
Chair – Elena Parilina

16:00–16:25 **Daria Teplova** and **Egor Ianovski**  
*Measuring and assessing the vulnerability to manipulation in various election rules*

16:25–16:50 **Vasily Gusev**  
*The existence of stable coalition structures in cooperative games*

16:50–17:15 **Ping Sun** and **Elena Parilina**  
*Impact of utilities on the structures of stable networks with group partitioning*

**17:30–17:50 CLOSING SESSION**