The 14th International Symposium on Dynamic Games and Applications

June 19-23, 2010

The Banff Centre, Banff, Alberta, Canada

Preliminary Program

INTERNATIONAL SOCIETY OF DYNAMIC GAMES

GERAD
Chair in Game Theory and Management
# Program Overview

## Saturday, June 19

**17:00 – 20:00  Registration/Reception**  MB Foyer & Lounge

## Sunday June 20

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tr>
<td>8:00 - 9:00</td>
<td>Registration</td>
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<tr>
<td>8:30 - 8:45</td>
<td>Opening Address</td>
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<tr>
<td>8:45 - 9:45</td>
<td>Plenary I: A. Bressan</td>
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<td>9:45 - 10:15</td>
<td>Coffee Break</td>
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<tr>
<td>10:15 - 12:15</td>
<td>Parallel Sessions</td>
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<td>12:15 - 13:30</td>
<td>Lunch</td>
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<tr>
<td>13:30-14:30</td>
<td>Plenary II: W. Sandholm</td>
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<td>14:30-15:00</td>
<td>Coffee Break</td>
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<td>15:00 - 17:45</td>
<td>Parallel Sessions</td>
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## Monday June 21

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## Tuesday June 22

<table>
<thead>
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<th>Time</th>
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<tr>
<td>8:45 - 9:45</td>
<td>Plenary III: L. Lambertini</td>
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## Wednesday, June 23

<table>
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<tr>
<th>Time</th>
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<tr>
<td>9:00 – 12:00</td>
<td>Tutorial Joel Brown</td>
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<td>12:00 – 13:30</td>
<td>Lunch</td>
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<tr>
<td>13:30 – 16:30</td>
<td>Tutorial Aart de Zeeuw</td>
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Sunday, June 20

8:00 – 9:00  Registration

8:30 – 8:45  Opening address

8:45 – 9:45  Plenary I, Chair: Pierre Cardaliaguet  MB Auditorium

*Systems of Hamilton-Jacobi equations and differential games*
Alberto Bressan

9:45 – 10:15  Coffee Break  MB Central Foyer

10:15 – 12:15  PARALLEL SESSIONS  SA

**SA1**  Evolutionary Games I: Tribute to Thomas Vincent  DCH Room 30
Chair: Tania Vincent

*Introductory remarks*
Joel Brown

*Evolutionary game theory: ESS, convergence stability, and NIS*
Joe Apaloo, Joel Brown, Tom Vincent

*Body size evolution in food webs*
Rosalyn Rael, Jim Cushing, Tom Vincent

*The Darwinian Dynamics of Carcinogenesis*
Robert Gatenby and Thomas Vincent

**SA2**  Differential Games: Theory and Computation I  MB Room 253
Chair: Stéphane Le Menec

*A nonzero-sum search game with two competitive searchers and a target*
Ryusuke Hohzaki

*One method of solving differential games under integrally constrained controls*
Alexander Belousov, Alexander Chentsov, Arkadii Chikrii

*Developing a library for processing input data in computational programs*
Sergey Kumkov, Denis Sannikov

*Study of a game with two pursuers and one evader*
Sergey Ganebny, Sergey Kumkov, Stéphane Le Menec, Valery Patsko
SA3 Applications in Environment, Energy and Resources I
Chair: Vladimir Mazalov

A Great Fish War model with asymmetric players
Michèle Breton, Michel Yevenunye Keoula

Towards a sustainable and time consistent use of the forest
Pablo Andres-Domenech, Guiomar Martín-Herrán, Georges Zaccour

Managing a transboundary fishery on a highly-migratory stock
Robert McKelvey, Peter Golubtsov

Fish wars with many players
Vladimir Mazalov, Anna Rettieva

12:15 – 13:30 Lunch
Vistas Dining Room

13:30 – 14:30 Plenary II, Chair: Ross Cressman
MB Auditorium

Evolutionary game theory: Overview and recent results
William H. Sandholm

14:30 – 15:00 Coffee Break
MB Central Foyer

15:00 – 17:45 PARALLEL SESSIONS SB

SB1 Evolutionary Games II
Chair: David Rand

Competition of spatial associations
Gyorgy Szabo

Evolution of cooperation and network structure
Cong Li, Ross Cressman, Yi Tao

ESS for life-history trait of cooperating consumers facing cheating mutants
Frederic Grognard, Ludovic Mailleret, Andrei Akhmetzhanov, Pierre Bernhard

15-minute break

Modelling kinship in the evolution of life history traits. An example in consumer-resource interactions
Andrei Akhmetzhanov, Ludovic Mailleret, Frédéric Grognard, Pierre Bernhard

Analysis of the game "Traveler's Dilemma" using an epsilon-optimal strategies
Magdalena Wisniewska, Sławomir Plaskacz
SB2  Differential Games: Theory and Computation II  MB Room 253
Chair: Leon Petrosjan

Approximate solutions for multicriteria situations
Lucia Pusillo, Fausto Mignanego, Stef Tijs

Information Patterns in Discrete-Time Linear-Quadratic Dynamic Games
Meir Pachter

A set oriented algorithm for dynamic games
Marcus von Lossow

15-minute break

Sustainability of cooperation over time with non-linear incentive equilibrium strategies
Javier de Frutos, Guiomar Martín-Herrán

About strategic support of cooperative solutions in differential games
Sergey Chistyakov, Leon Petrosyan

SB3  Applications in Environment, Energy and Resources II  Function Room 6
Chair: Rodney Beard

Two-level games in natural resource management
Yury Korolev, Peter Golubtsov

Incentive conditions for rational behavior in discrete bioresource management problem
Vladimir Mazalov, Anna Rettieva

Investments in Oligopolistic Electricity Markets: Impact of some Parameters and Comparison of Predictions and Realizations
Pierre-Olivier Pineau, Hasina Rasata, Georges Zaccour

15-minute break

Banking or not banking? The effects of transaction costs
Karima Fredj, Alain Jean-Marie, Guiomar Mártin-Herrán, Mabel Tidball

Multi-jurisdiction quota enforcement for transboundary renewable resources
Rodney Beard, Linda Nostbakken
Monday, June 21

8:00 – 10:00 PARALLEL SESSIONS MA

MA1 Evolutionary Games III: Tribute to Thomas Vincent DCH Room 30
Chair: Joel Brown

Darwin's finches and Darwinian dynamics: Predicting beak strategies and abundances on the Galapagos Islands
Tania Vincent, Thomas Vincent

Evolutionary stability of optimal behavior in foraging games
Vlastimil Krivan, Ross Cressman

Competitor against optimizer: Evolutionary dynamics model
József Garay

Dynamics of a Threshold Public Goods Game in Ambiguity
Arnaud Dragicevic

MA2 Stochastic Games MB Room 253
Chair: Andrzej S. Nowak

On a continuous solution to the Bellman-Poisson equation in stochastic games
Anna Jaskiewicz

Securing infrastructures via stochastic games
Melike Baykal-Gursoy, Zhe Duan

On some properties of multi-person stopping game
Elzbieta Ferenstein, Anna Krasnosielska

On stochastic games with unbounded payoff functions
Andrzej S. Nowak

MA3 Applications in Environment, Energy and Resources III Function Room 6
Chair: Aart de Zeeuw

Pollution emissions in presence of international environmental agreements, uncertain and learning
Michèle Breton, Lucia Sbragia

Buying cooperation in an asymmetric environmental differential game
Pascaux Smala Fanoko, Issam Telahigue, Georges Zaccour

On clean technologies in a transboundary pollution game
Hassan Benchekroun, Amrita Ray Chaudhuri

The size of stable International Environmental Agreements in the case of stock pollution
Florian Wagener, Aart de Zeeuw
10:00 – 10:30  Coffee Break  

10:30 – 12:30  PARALLEL SESSIONS  MB

**MB1 Evolutionary Games IV**  
Chair: Vlastimil Krivan

*The evolution of anti-social punishment*
David Rand

*The evolution of preferences, punishment and collective action*
Gonzalo Olcina, Vicente Calabuig

*The evolutionary models in the stock market simulation*
Elena Gubar

*A large population mate choice problem with age preferences*
David Ramsey

**MB2 Differential Games: Theory and Computation III**  
Chair: Tamer Basar

*Differential game-theoretic approach to a spatial jamming problem*
Sourabh Bhattacharya, Tamer Basar

*Game problems for systems involving Hilfer fractional derivatives*
Arkadii Chikrii, Ivan Matychyn

*Feedback Nash equilibria for linear quadratic descriptor differential games*
Jacob Engwerda, Salmah Salmah

*Nash equilibrium seeking for dynamic systems with non-quadratic payoffs*
Paul Frihauf, Miroslav Krstic, Tamer Basar

**MB3 Applications in Economics and Finance I**  
Chair: Vladimir Petkov

*Inflation Linked Bonds: An incentive for lower inflation? Pricing from a Central Bank's perspective*
Johannes Geissler, Christian Ewald

*Emergence of a nested coalition structure in a pure bargaining game*
Haruo Imai

*The Co-evolution of entrepreneurship and the public sector efficiency*
Gonzalo Olcina, Empar Pons, Luisa Escriche

*Endogenous addictiveness: Implications for competition and regulation*
Paul Calcott, Vladimir Petkov
Tuesday June 22

8:45 – 9:45  Plenary III, Chair: Georges Zaccour  MB Auditorium

  Differential oligopoly games with capacity accumulation
  Luca Lambertini

9:45 – 10:15  Coffee Break  MB Central Foyer

10:15 – 12:15  PARALLEL SESSIONS  TA

TA1  Evolutionary Games V  DCH Room 30
  Chair: Joe Apaloo

  Reward and punishment in repeated games: experimental evidence
  David Rand, Martin Nowak, Anna Dreber, Drew Fudenberg

  Costly punishment does not always increase cooperation
  Ross Cressman, Yi Tao

  Time delays in replicator dynamics in social and biological models
  Jacek Miekisz

  Convergence properties of the stochastic replicator dynamics in potential games
  Panayotis Mertikopoulos, Aris Moustakas

TA2  Applications in Economics and Finance II  MB Room 253
  Chair: Jorge Navas

  A dynamic game model for the resolution of financial distress under Chapter 11
  Amira Annabi, Michèle Breton, Pascal François

  Real options in a duopoly under incomplete information
  Gert Janssens, Peter Kort

  Strategies in repeated plays ---Expert Selection Problem
  Mingfei Li

  Time inconsistent preferences with non-homogeneous constant discount rates
  Albert De Paz, Jesús Marín-Solano, Jorge Navas
TA3 Dynamic Games I: In honor of George Leitmann
Chair: Dean Carlson

The Leitmann - Schmitendorf advertising differential game
Steffen Jørgensen, Guiomar Martín-Herrán, Georges Zaccour

The incentive to invest in environmental-friendly technologies: Dynamics makes a difference
Luca Lambertini, Davide Dragone, Arsen Palestini

Caratheodory's royal road of the calculus of variations: Missed exits to the maximum principle of optimal control theory
Hans Josef Pesch

A penalty method approach for open-loop variational games with equality constraints
Dean Carlson, George Leitmann

12:15 – 13:30 Lunch
Vistas Dining Room

13:30 – 15:30 PARALLEL SESSIONS  TB

TB1 Mathematical Aspects of Differential Games I:
DCH Room 30
Tribute to Leonard Berkovitz
Chair: Marc Quincampoix

A differential game with one player in the dark
Pierre Cardaliaguet, Anne Souquière

Mean field social dynamics with egoistic, altruistic and massive agents: A Nash game formulation
Peter Caines, Minyi Huang, Roland Malhamé

Option pricing with zero lower-bound of impulse cost
Naïma El Farouq, Pierre Bernhard

Approachability of repeated games with incomplete information
Marc Quincampoix

TB2 Dynamic Games II: In honor of George Leitmann
MB Room 253
Chair: Arkady Kryazhimsky

Differential games with mixed leadership
Tamer Basar

Dynamically consistent solution for a cooperative differential game of climate change control
David Yeung

Necessary and sufficient conditions for Pareto optimality in differential games
Puduru Reddy, Jacob Engwerda

TBA
Arkady Kryazhimsky
TB3 Applications in Marketing and Operations Management I  
Chair: Gary Erickson

Offensive versus defensive spending: What is the optimal mix?  
Guiomar Martín-Herrán, Shaun McQuitty, Simon Sigué

A differential games approach to event advertising  
Luca Grosset, Bruno Viscolani

How to reinforce a brand value using a licensing agreement  
Alessandra Buratto, Luca Grosset

A differential game model of the marketing-operations interface  
Gary Erickson

15:30 – 16:00 Coffee Break  
MB Central Foyer

16:00 – 18:00 Parallel Sessions TC

TC1 Mathematical Aspects of Differential Games II:  
DCH Room 30  
Chair: Geert Jan Olsder

Anglers' fishing problem  
Krzysztof Szajowski

Dynamic inverse Stackelberg problems  
Geert Jan Olsder

Characterization of feedback Nash equilibrium for differential games  
Yuri Averboukh

TC2 Applications in Marketing and Operations Management II  
MB Room 253  
Chair: Bruno Viscolani

A supply chain game with design and conformance quality under wholesale price and revenue-sharing contract  
Fouad El Ouardighi, Konstantin Kogan

Coop programs in closed-loop supply chain with incentives  
Pietro De Giovanni, Georges Zaccour

Price competition and store competition: Store brands vs. national brand  
Karima Fredj, Sungchul Choi

Comparative advertising as a differential game  
Bruno Viscolani, Luca Grosset
TC3 Applications in Economics and Finance III  
Chair: Francisco Cabo

Games with long term and short term players  
George P. Papavassilopoulos, Nikolaos Kakogiannis

Sooner or later? On the possibility of accelerating adoption of socially desirable choices  
Jacek Krawczyk, Mabel Tidball

Foresight and myopia in a transboundary pollution game  
Hassan Benchekroun, Guiomar Martín-Herrán

The endogenous determination of retirement age and Social Security benefits  
Francisco Cabo, Ana García-González

Wednesday, June 23

9:00 – 12:00  Tutorial I, Chair: Joe Apaloo  DCH Room 30

  Solution concepts and modelling tools for solving and applying evolutionary games  
    Joel Brown

  (10:15 – 10:45 Coffee Break)  MB Central Foyer

12:00 – 13:30  Lunch  Vistas Dining Room

13:30 – 16:30  Tutorial II, Chair: Michèle Breton  DCH Room 30

  Dynamic games in environmental economics  
    Aart de Zeeuw

  (14:45 – 15:15 Coffee Break)  MB Central Foyer