



MMEE 2015

Keynote speakers

Michael Doebeli
University of British Columbia, Canada;
Maria Servedio
University of North Carolina, USA;
Eva Kisdi
University of Helsinki, Finland;
Arne Traulsen
Max Planck Institute, Plön, Germany;
Régis Ferrière
Ecole Normale Supérieure Paris, France; and
Joshua Plotkin
University of Pennsylvania, USA.

Scientific committee

Mark Broom (City U London), James Marshall (U Sheffield), Hélène Morlon (ENS Paris), Jon Pitchford (York U), Franjo Weissing (Groningen U).

Organising committee

Amaury Lambert (UPMC, Collège de France), Guillaume Achaz (UPMC, Collège de France), Minus van Baalen (CNRS, ENS), Silvia De Monte (CNRS, ENS), Todd Parsons (UPMC, CNRS, Collège de France), Emmanuel Schertzer (UPMC, Collège de France).



COLLÈGE
DE FRANCE
1530

PIERRE GILLES
DE GENNES
FONDATION POUR LA RECHERCHE



PSL
RESEARCH
UNIVERSITY





This is the program of the Mathematical Models in Ecology and Evolution conference, held in Paris from 8 to 10 July at the Collège de France.

There is a program outline, more detailed programs for each day, and full programs for each lecture theatre. The abstracts of the presentations can be consulted or downloaded from the meetings' website at <http://www.biologie.ens.fr/mmee2015>.

Keynotes will take place in the *Amphithéâtre Marguerite de Navarre*, while the minisymposia and sessions of contributed talks will place in lecture rooms nearby. Consult the map on page 7 to orient yourself.

Lunch will be provided in the central halls downstairs.

The poster session and the cocktail party will take place in the central hall and the adjoining rooms 7, 8 and 10.

Wifi access will be available in some lecture rooms ("public_cdf", password: "externecdf789"). Please note that the capacity of this network is limited.

We hope you will all enjoy the conference!

The organisers



Collège de France is a public higher education institution, which is unique in France and has no equivalent abroad. Since the 16th century, Collège de France has been given a two-fold mission of cutting-edge research and teaching, but teaching "knowledge in the making", in every field of literature, science and the arts.

Collège de France was founded by Francis I, who appointed the first "Lecteurs royaux" in 1530. Their role was to teach disciplines which were not yet recognized at university level. Today, these former lecteurs royaux have become 57 professors covering a huge range of disciplines ranging from mathematics to the study of major civilizations, and include physics, chemistry, biology and medicine, philosophy and literature, the social sciences and economics, prehistory, archaeology and history, linguistics, and many more.

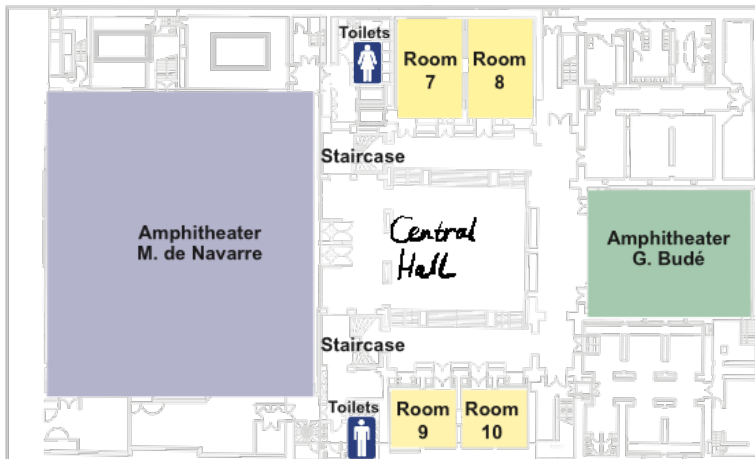
Collège de France is currently directed by 2012 Nobel laureate in Physics Prof. Serge Haroche.

The Center for Interdisciplinary Research in Biology (CIRB) is composed of twenty teams, mostly junior groups, spanning a wide range of research topics, including neuroscience, developmental biology, infectious diseases, cardio-vascular research, as well as groups of physicists or mathematicians with a strong interest for biological sciences. The Center benefits from lying at the heart of the 'Quartier Latin', an extraordinary rich intellectual milieu. Specifically, CIRB has developed strong interactions with high profile neighbouring institutions, in particular the Ecole Normale Supérieure, UPMC University Paris 06 and the Curie Institute.

The organising committee of MMEE 2015 gathers researchers working at the interface between mathematics, ecology, population genetics and evolution, belonging to two interdisciplinary groups in the Quartier Latin, the SMILE group ('Stochastic models for the inference of life evolution') at CIRB-Collège de France (Amaury Lambert, Guillaume Achaz, Todd Parsons, Emmanuel Schertzer) and the EEM group ('Eco-evolutionary Mathematics') at the Ecole Normale Supérieure (Silvia De Monte, Minus van Baalen).



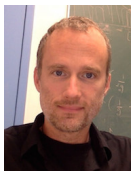
Basement





We are here to help you!

The organising committee



Amaury
Lambert



Emmanuel
Scherzer



Guillaume
Achaz



Minus
van Baalen



Silvia
De Monte



Todd
Parsons

The SMILE Group



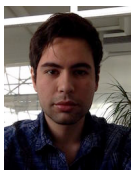
Fanny
Gascuel



Florence
Débarre



Francois
Bienvenu



José Tomás
Méndez Vera



Kader
Behdenna



Marc
Manceau



Marguerite
Lapierre



Miraine
Dávila Felipe



Odile
Maliet



Veronica
Miró Pina

Program Outline

Wednesday 8 July 2015

8:30 Welcome and registration
 9:00 Keynote: Ferrière
 10:00 Short break
 10:10 Contributed talks
 11:10 Coffee break
 11:40 Contributed talks
 12:40 Lunch
 14:00 Mini-symposia
 Amphi Halbwachs: Epigenetics
 Amphi Budé: Adaptive Syndromes
 Room 2: Insect Infections
 Room 5: Adaptation
 15:00 Short break
 15:15 Mini-symposia (cont'd)
 16:15 Coffee break
 16:45 Keynote: Servedio
 17:45

Thursday 9 July 2015

9:00 Keynote: Doebeli
 10:00 Short break
 10:10 Contributed talks
 11:10 Coffee break
 11:40 Contributed talks
 12:40 Lunch
 14:00 Mini-symposia
 Amphi Halbwachs: Changing Environments
 Amphi Budé: Evolutionary Games
 Room 2: Species-rich Communities
 Room 5: Genotype-Phenotype Maps
 Room 4: Search Problems
 15:00 Short break
 15:15 Mini-symposia (cont'd)
 16:15 Coffee break
 16:45 Keynote: Plotkin
 17:45 Poster session +
 Cocktail party
 20:00

Friday 10 July 2015

9:00 Keynote: Kisdi
 10:00 Short break
 10:10 Mini-symposia
 Amphi Halbwachs: Limits to Selection
 Amphi Budé: Complex Models
 Room 2: Competition
 Room 5: Fitness
 11:10 Coffee break
 11:40 Mini-symposia (cont'd)
 12:40 Lunch
 14:00 Contributed talks
 15:00 Short break
 15:15 Keynote: Traulsen
 16:15 End of conference

Program

Wednesday 8

8:30

Welcome and registration

9:00

Chair: Amaury Lambert

Régis Ferrière: *Ecological causes and consequences of evolution: Insights from adaptive dynamics*

10:00

Short break

10:10

Contributed talks

<u>Amphi Halbwachs</u>	<u>Amphi Budé</u>	<u>Lecture Room 2</u>	<u>Lecture Room 5</u>
:10 Steel	:10 Fung	:10 Quiñones	:10 Baigent
:30 Broom	:30 Jiménez-Ontiveros	:30 Verin	:30 Klausmeier
:50 Farahpour	:50 Pontarp	:50 Calcraft	:50 Daly

11:10

Coffee break

11:40

Contributed talks

<u>Amphi Halbwachs</u>	<u>Amphi Budé</u>	<u>Lecture Room 2</u>	<u>Lecture Room 5</u>
:40 Claessen	:40 Bernhauerová	:40 Martinez-Garcia	:40 Toor
:00 Donohue	:00 Misevic	:00 Renton	:00 Sofonea
:20 Ratikainen	:20 Barta	:20 Rescan	:20 Bacaer

12:40

Lunch

14:00

Mini-symposia

<u>Amphi Halbwachs</u>	<u>Amphi Budé</u>	<u>Lecture Room 2</u>	<u>Lecture Room 5</u>
<u>Epigenetics</u>	<u>Adaptive syndromes</u>	<u>Insect Infections</u>	<u>Adaptation</u>
:00 Rivoire	:00 Rueffler	:00 Débarre	:00 Billiard
:30 Pen	:30 Massol	:30 Churcher	:30 Champagnat

15:00

Short break

15:15

Mini-symposia (cont'd)

<u>Amphi Halbwachs</u>	<u>Amphi Budé</u>	<u>Lecture Room 2</u>	<u>Lecture Room 5</u>
<u>Epigenetics</u>	<u>Adaptive syndromes</u>	<u>Insect Infections</u>	<u>Adaptation</u>
:15 Higginson	:15 Iritani	:15 Peck	:15 Fritsch
:35 Kuijper	:35 Ripa	:35 Lambert	:35 Costa
:55 Hoyle	:55 Wylie	:55 Hancock	:55 Gascuel

16:15

Coffee break

16:45

Chair: Guillaume Achaz

Maria Servedio: *Patterns of migration, assortative mating, and the effects of sexual selection on speciation and divergence*

17:45

Program Amphithéâtre Maurice Halbwachs

Wednesday 8

10:00

Short break

10:10

Contributed talks

Proposed Chair: *Jim Cushing*

:10

Mike Steel: *When good models go bad: provable properties of phylogenetic tree methods, under model mis-specification*

:30

Mark Broom: *A dynamic network population model with strategic link formation governed by individual preferences*

:50

Farnoush Farahpour: *Studying the changes in interaction network of an evolving competitive community: An stochastic adaptive dynamics model*

11:10

Coffee break

11:40

Contributed talks

Proposed Chair: *Luis-Miguel Chevin*

:40

David Claessen: *Eco-evolutionary dynamics in spatially complex systems: from agro-ecology to the global ocean*

:00

John Donohue: *The effects of predation on a seasonally migrating population*

:20

Irja Ida Ratikainen: *A general stochastic dynamic model of the differential allocation hypothesis*

12:40

Lunch

14:00

Mini-symposium

Origin and role of epigenetic information transmission in evolution

Chairs: Sinead English and Jérôme Enjalbert

:00

Olivier Rivoire: *Models of information processing in evolving populations*

:30

Ido Pen: *When is incomplete epigenetic resetting in germ cells favoured by natural selection?*

15:00

Short break

15:15

:15

Andrew Higginson: *Use of physiological states as a source of information approximates the performance of Bayesian learning*

:35

Bram Kuijper: *Nongenetic effects in age-structured populations*

:55

Rebecca Hoyle: *Coevolution of maternal effects and within-generation phenotypic plasticity: a quantitative genetics model*

16:15

Coffee break

Amphithéâtre Guillaume Budé

Wednesday 8

10:00

Short break

10:10

Contributed talks

Chair: James Rosindell

:10

Tak Fung: *Species-abundance distributions and species ages from model communities assembled under environmental variance: a master-equation approach*

:30

Vicente Luis Jiménez-Ontiveros: *The temporal assembly of microbial communities: Insights from Island Biogeography Theory*

:50

Mikael Pontarp: *The origin of species richness patterns along environmental gradients: uniting explanations based on time, diversification rate, and carrying capacity*

11:10

Coffee break

11:40

Contributed talks

Proposed Chair: David Basanta

:40

Veronika Bernhauerová: *Evolution of male-killing bacteria*

:00

Dusan Misevic: *Shape matters: lifecycle of cooperative patches and the evolution of cooperation*

:20

Zoltan Barta: *Why budding yeast (*Saccharomyces cerevisiae*) produces public goods?*

12:40

Lunch

14:00

Mini-symposium

Trade-offs and adaptive syndromes in evolution

Chair: Hélène Weigang

:00

Claus Rueffler: *Does organismal complexity favor the evolution of diversity?*

:30

François Massol: *Joint evolution of dispersal and the allocation of dispersal cost in heterogeneous landscapes*

15:00

Short break

15:15

:15

Ryosuke Iritani: *Near-and-far dispersal revisited: evolutionary limits to mating system can explain differential dispersal*

:35

Jörgen Ripa: *On niche conservatism, niche monopolization and the mechanics of adaptive trait evolution*

:55

Scott Wylie: *Entropic tradeoffs in antibiotic resistance evolution*

16:15

Coffee break

Program Lecture Room 2

Wednesday 8

10:00

Short break

10:10

Contributed talks

Chair: Laurent Lehmann

:10

Andrés E. Quiñones: *A unified model of the transition from solitary to eusocial life*

:30

Mélissa Verin: *The neutral evolution of iteroparity*

:50

Paul Calcraft: *Group selection is not needed to explain the structure of sub-social spider colonies*

11:10

Coffee break

11:40

Contributed talks

Chair: Reinhardt Bürger

:40

Ricardo Martínez-García: *Fitness tradeoffs between spores and non-aggregating cells can explain the coexistence of diverse genotypes in cellular slime molds*

:00

Michael Renton: *Simulating the evolution of structural root growth strategies in plants in different environments*

:20

Marie Rescan: *Interactions between genetic and ecological effects on the evolution of life cycles*

12:40

Lunch

14:00

Mini-symposium

The ecological dynamics of insect infections

Chairs: Penelope Hancock and Ace North

:00

Florence Débarre: *Spatial structure and the evolution of altruistic host defence strategies*

:30

Thomas Churcher: *The importance of parasite density in malaria transmission*

15:00

Short break

15:15

:15

Steven L. Peck: *An ecologically complex agent-based model of tsetse fly suppression programs in Senegal*

:35

Ben Lambert: *A novel estimation of mosquito longevity using a Bayesian meta-analysis*

:55

Penelope Hancock: *Density-dependent population dynamics in *Aedes aegypti* slow the spread of *wMel* *Wolbachia**

16:15

Coffee break

Program Lecture Room 5

Wednesday 8

10:00

Short break

10:10

Contributed talks

Chair: Etienne Sirost

:10

Stephen Baigent: *Geometric approaches to the study of competition*

:30

Christopher Klausmeier: *ADventures in space and time*

:50

Aisling Daly: *The impact of initial evenness on competitive dynamics: an individual-based approach*

11:10

Coffee break

11:40

Contributed talks

Chair: Florence Débarre

:40

Jaspreet Toor: *The evolution of host resistance to disease in the presence of predators*

:00

Mircea T. Sofonea: *From within-host interactions to epidemiological competition and back again*

:20

Nicolas Bacaer: *Le modèle stochastique SIS pour une épidémie dans un environnement aléatoire*

12:40

Lunch

14:00

Mini-symposium

Adaptation: merging ecological and evolutionary processes, from the individuals to macroscopic scale

Chair: Sylvie Méléard

:00

Sylvain Billiard: *Revisiting clonal interference: from competitive interactions between individuals to population dynamics and adaptation*

:30

Nicolas Champagnat: *The limit of small mutations in a stochastic individual-based model and the canonical equation of adaptive dynamics*

15:00

Short break

15:15

:15

Coralie Fritsch: *Adaptive dynamics of bacterial populations in a chemostat*

:35

Manon Costa: *Stochastic eco-evolutionary model of a prey-predator community*

:55

Fanny Gascuel: *How ecology and landscape dynamics shape phylogenetic trees*

16:15

Coffee break

Program

Thursday 9

9:00

Chair: Silvia De Monte

Michael Doebeli: *Diversification and co-evolution in high-dimensional phenotype spaces*

10:00

Short break

10:10

Contributed talks

<u>Amphi Halbwachs</u>	<u>Amphi Budé</u>	<u>Lecture Room 2</u>	<u>Lecture Room 5</u>	<u>Lecture Room 4</u>
:10 Gavrilets	:10 Martin	:10 North	:10 Lartillot	:10 Adamson
:30 Kaiping	:30 Nassar	:30 Weigang	:30 Cornell	:30 Morozov
:50 Garcia	:50 Anciaux	:50 Pollett	:50 Allhoff	:50 Perminov

11:10

Coffee break

11:40

Contributed talks

<u>Amphi Halbwachs</u>	<u>Amphi Budé</u>	<u>Lecture Room 2</u>	<u>Lecture Room 5</u>	<u>Lecture Room 4</u>
:40 Sankaran	:40 Koffel	:40 Welch	:40 Sentis	:40 Tomasetti
:00 Mills	:00 Souza	:00 Pardoux	:00 Shim	:00 González-Forero
:20 Majumder	:20 Balaz	:20 Siri-Jégousse	:20 Crete	:20 Gun

12:40

Lunch

14:00

Mini-symposia

<u>Amphi Halbwachs</u>	<u>Amphi Budé</u>	<u>Lecture Room 2</u>	<u>Lecture Room 5</u>	<u>Lecture Room 4</u>
Changing Environments	Evolutionary Games	Species-rich Communities	Genotype- Phenotype Maps	Search Problems
:00 Bürger	:00 Basanta	:00 Melian	:00 Khatri	:00 Gal
:30 Chevin	:30 Lanchier	:30 Rosindell	:30 Louis	:30 Fokkink

15:00

Short break

15:15

<u>Amphi Halbwachs</u>	<u>Amphi Budé</u>	<u>Lecture Room 2</u>	<u>Lecture Room 5</u>	<u>Lecture Room 4</u>
Changing Environments	Evolutionary Games	Species-rich Communities	Genotype- Phenotype Maps	Search Problems
:15 Bertram	:15 Gokhale	:15 Dalla Riva	:15 Siddharta	:15 Leone
:35 Guillaume	:35 Pattni	:35 Wiegand	:35 Hemery	:35 Triska
:55 Alizon	:55 Peña	:55 Etienne	:55 Altenberg	:55 Koselj

16:15

Coffee break

16:45

Chair: Todd Parsons

Joshua Plotkin: *On the role of epistasis in molecular evolution*

17:45

18:00

Poster session + Cocktail party

20:00

Program Amphithéâtre Maurice Halbwachs

Thursday 9

10:00

Short break

10:10

Contributed talks

Proposed Chair: xxx

:10

Sergey Gavrilets: *Collective action and the collaborative brain*

:30

Gereon A. Kaiping: *Economics and Genetics: How market-structured migration modifies domestic animal evolution*

:50

Thomas Garcia: *Evolutionary coupling of sociality and cooperation in microbial populations*

11:10

Coffee break

11:40

Contributed talks

Proposed Chair: Shmuel Gal

:40

Sumithra Sankaran: *Characterising patchiness and scale of interactions in semi-arid vegetation patterns*

:00

Robin Mills: *Evolution of the stoop of falcons in a model of bird flight*

:20

Sabiha Majumder: *A method to estimate the threshold of critical transitions in ecosystems using spatial data*

12:40

Lunch

14:00

Mini-symposium

Adaptation in a changing environment

Chairs: Sebastian Matuszewski and Michael Kopp

:00

Reinhardt Bürger: *Epistasis, mutational architecture, and the response to selection of complex traits*

:30

Luis-Miguel Chevin: *Stochastic evolutionary demography under a fluctuating optimum phenotype*

15:00

Short break

15:15

:15

Jason Bertram: *A population-genetic model of long-term adaptation and extinction*

:35

Frédéric Guillaume: *Limits of adaptation of multiple characters to shifting environmental gradients*

:55

Samuel Alizon: *Parasite evolutionary emergence: importance of population dynamics feedbacks*

16:15

Coffee break

Program Amphithéâtre Guillaume Budé

Thursday 9

10:00

Short break

10:10

Contributed talks

Proposed Chair: *Dmitri Petrov*

:10

Guillaume Martin: *Non-stationary and non-linear: how can we extend the dynamics of adaptation to a moving optimum*

:30

Elma Nassar: *Phenotypic adaptation in the moving optimum model*

:50

Yoann Anciaux: *Eco-evolutionary dynamics of evolutionary rescue in large asexuals populations*

11:10

Coffee break

11:40

Contributed talks

Chair: *Sylvain Billiard*

:40

Thomas Koffel: *Geometrical envelopes: a natural extension of the graphical theory of competition to the adaptive dynamics framework*

:00

Max Souza: *Fixation in large populations: a continuous view of a discrete problem*

:20

Daniel Balaz: *Do sheep cheat themselves by mounting weak immune responses?*

12:40

Lunch

14:00

Mini-symposium

Evolutionary Games

Chair: *Rick Durrett*

:00

David Basanta: *Tumor heterogeneity: insights from game theory*

:30

Nicolas Lanchier: *Best-response dynamics*

15:00

Short break

15:15

:15

Chaitanya S. Gokhale: *Eco-evolutionary dynamics of social dilemmas*

:35

Karan Pattni: *A study of dynamics of multi-player games on small networks using territorial interactions*

:55

Jorge Peña: *Ordering population structures by their potential to promote the evolution of cooperation*

16:15

Coffee break

Program Lecture Room 2

Thursday 9

10:00

Short break

10:10

Contributed talks

Chair: François Massol

:10

Ace North: *Disease invasion in metapopulations: the role of dispersal range*

:30

Hélène Weigang: *On the evolution of patch-quality dependent immigration*

:50

Phil Pollett: *Metapopulations with dynamic extinction probabilities*

11:10

Coffee break

11:40

Contributed talks

Chair: Nicolas Champagnat

:40

David Welch: *Inference under the coalescent in a continuous landscape*

:00

Etienne Pardoux: *Probability of fixation of an advantageous allele in the "Bolthausen-Sznitman model"*

:20

Arno Siri-Jégousse: *The Bolthausen-Sznitman coalescent and its applications in genetics*

12:40

Lunch

14:00

Mini-symposium

Understanding the eco-evolutionary assembly of species-rich communities: The role of stochastic community models

Chairs: José Capitan and D. Alonso

:00

Carlos Melian: *Eco-evolutionary diversification dynamics*

:30

James L. Rosindell: *Unifying ecology and macroevolution with individual-based theory*

15:00

Short break

15:15

:15

Giulio Valentino Dalla Riva: *Randomness and evolutionary histories in food webs*

:35

Thorsten Wiegand: *Understanding the assembly and dynamics of species-rich communities using spatially-explicit and stochastic community models*

:55

Rampal S. Etienne: *Equilibrium and non-equilibrium dynamics simultaneously operate in the Galápagos islands*

16:15

Coffee break

Program Lecture Room 5

Thursday 9

10:00

Short break

10:10

Contributed talks

Proposed Chair: *Carlos Melian*

:10

Nicolas Lartillot: *Fitting a Red-Queen model of species diversification to empirical phylogenies*

:30

Stephen Cornell: *Spatial incoherence in the maximum entropy theory of ecology*

:50

Korinna Theresa Allhoff: *Biodiversity and ecosystem functioning in evolving food web*

11:10

Coffee break

11:40

Contributed talks

Chair: *Thomas Churcher*

:40

Arnaud Sentis: *Ecological consequences of temperature-induced change in body size: species survival and population dynamics under global change*

:00

Eunha Shim: *Differential impact of sickle cell trait on symptomatic and asymptomatic malaria*

:20

Rémi Crete: *Durability and breakdown of resistance to pathogens in crops*

12:40

Lunch

14:00

Mini-symposium: Biophysical approaches to genotype-phenotype maps in evolution and speciation

Chair: *Richard Goldstein*

:00

Bhavin Khatri: *Evolutionary stochastic dynamics of speciation for a coarse-grained model of protein binding DNA*

:30

Ard Louis: *Evolutionary dynamics, the structure of genotype-phenotype maps, and the arrival of the frequent*

15:00

Short break

15:15

:15

Rahul Siddharthan: *Inferring TFBS evolution: position-specific evolution in transcription factor binding sites*

:35

Mathieu Hemery: *Evolution of sparsity and modularity in a model of allosteric protein*

:55

Lee Altenberg: *Fundamental properties of the evolution of mutational robustness*

16:15

Coffee break

Program Lecture Room 4

Thursday 9

10:00

Short break

10:10

Contributed talks

Chair: Robbert Fokkink

:10

Matthew Adamson: *Evaluating structural sensitivity of partially specified models in ecology*

:30

Andrew Morozov: *Bifurcation analysis of biological models with uncertain function specification: developing a new framework*

:50

Valeriy Perminov: *Agent-based models and ill-posed problems*

11:10

Coffee break

11:40

Contributed talks

Chair: Ard Louis

:40

Cristian Tomasetti: *Stem cell divisions, number of drivers and tumor evolution. Modeling tumor evolution.*

:00

Mauricio González-Forero: *A mathematical model for brain development*

:20

Onur Gun: *The stochastic encounter-mating model*

12:40

Lunch

14:00

Mini-symposium

Search problems in predator-prey interactions

Chair: Steve Alpern

:00

Shmuel Gal: *Repeated hide-see and pursuit-evasion games*

:30

Robbert Fokkink: *Ambush frequency should decrease over time during optimal predator search for prey*

15:00

Short break

15:15

:15

Pierre Leone: *Scent-trail rendezvous*

:35

Maggie Triska: *The effectiveness of surveillance strategies to detect new biological invasions depends on the organism's dispersal characteristics*

:55

Klemen Koselj: *Optimisation of sensing for efficient foraging*

16:15

Coffee break

Posters

Vitalii Akimenko: *Evolutionary dynamics of age-structured polycyclic one-sex population*

Farah Al-Shorbaji: *Managing the spread of emerging infectious diseases in freshwater wildlife*

Martin Andrade Restrepo: *On the emergence of clustering along space-trait gradients*

Hélène Arduin: *Detecting and quantifying between-pathogens interactions in humans: an agent based model simulation study*

Guillaume Baudoin: *Invasion dynamic of an urban termite pest in Paris*

Koen van Benthem: *Disentangling evolutionary and plastic processes underlying trait dynamics*

Kazuhiro Bessho: *The evolution of ploidy level in macroalgal life cycles and the effect of spatial structure*

Robert Beyer: *Tree growth modelling via spatial leaf density*

Julien Clavel: *A major role of climatic changes on evolutionary rates in birds and mammals*

Dorian Collot: *Modelling respiro-fermentative dynamics of *Saccharomyces cerevisiae* batch culture to understand the evolution of life-history strategies*

Paul Darmé: *Genome-wide patterns of evolution in experimental populations of *Caenorhabditis elegans* with low standing genetic diversity*

E. Yagmur Erten: *Parasite evolution on heterogeneous contact networks*

Eugene Geidelberg: *Facing widespread, single combination anti-retroviral treatment, will HIV vanish?*

Wesley A C Godoy: *Competitive interactions and local neighbourhood density dependence in natural enemies of pests*

Quentin Griette: *Virulence evolution at the front line of spreading epidemics*

Ghjuvan Grimaud: *How will marine phytoplankton face global warming ? An Adaptive Dynamics global scale study*

Thiago Guzella: *Linkage and genome dynamics under different rates of environmental change*

Benoit Henry: *Moments and CLTs for the frequency spectrum of a Splitting tree with neutral Poissonian mutation*

Gereon Kaiping: *Economics and Genetics: How market-structured migration modifies domestic animal evolution*

Tsukushi Kamiya: *Optimal defence deployment tactics: insights from coevolutionary interactions*

Marguerite Lapierre: *Reference models in molecular evolution*

Marc Manceau: *The species problem from a modeler's point of view*

Sebastian Matuszewski: *Catch me if you can: Adaptation from standing genetic variation to a moving phenotypic optimum*

Andreas Mayer: *Evolution of immune mechanisms*

Verónica Miró Pina: *Spatial patterns of speciation*

Etoko Nonaka: *Spatial distributions of genetic diversity and local adaptation in metapopulations on heterogeneous landscapes*

Andrej Novak: *Continuum model of gene expression by small non-coding RNAs and protein Argonaute*

Leonardo Oña: *Evolution of sexual and clonal populations on complex adaptive landscapes*

Swati Patel: *Eco-evolutionary dynamics of an intraguild predation module*

Yuriy Pichugin: *The evolution of cooperation in group structured populations with migration: implications for the evolution of multicellularity*

Arunas L. Radzvilavicius: *Modelling the role of mitochondria in the evolution of germline and two sexes*

Sébastien Raguideau: *Modeling fiber degradation by human gut microbiome*

Mahdi Saber Raza: *Using survival analysis to investigate breast cancer in the Kurdistan Region of Iraq*

Tomas Revilla: *Pollinator foraging flexibility and the coexistence of competing plants*

Tom Rosenström: *Depressive symptoms as adaptive management of divorce threat: a model of optimal behavior and its empirical evaluation*

Mattias Siljestam: *MHC polymorphism as a result of evolutionary branching*

Gayle Somerville: *Herbicide resistance*

Sabrina Streipert: *The Beverton-Holt difference equation with periodic growth rate*

Program

Friday 10

9:00

Chair: Minus van Baalen

Eva Kisdi: *Adaptive dynamics from a single strain to saturated polymorphisms*

10:00

Short break

10:10

Mini-symposia

<u>Amphi Halbwachs</u>	<u>Amphi Budé</u>	<u>Lecture Room 2</u>	<u>Lecture Room 5</u>
Limits to Selection	Complex Models	Competition	Fitness
:10 Barton	:10 Durrett	:10 Siroto	:10 Lehmann
:40 Petrov	:40 Cushing	:40 Křivan	:40 Masel

11:10

Coffee break

11:40

Mini-symposia (cont'd)

<u>Amphi Halbwachs</u>	<u>Amphi Budé</u>	<u>Lecture Room 2</u>	<u>Lecture Room 5</u>
Limits to Selection	Complex Models	Competition	Fitness
:40 Pénissou	:40 Kang	:40 Kura	:40 Radosavljevic
:00 Palero	:00 Lewitus	:00 Argasinski	:00 Frenoy
:20 Roze	:20 Van Doorn	:20 Garay	:20 Parvinen

12:40

Lunch

14:00

Contributed talks

<u>Amphi Halbwachs</u>	<u>Amphi Budé</u>	<u>Lecture Room 2</u>	<u>Lecture Room 5</u>
:00 Raoul	:00 Leman	:00 Baumdicker	:00 Dragicevic
:20 Trimmer	:20 Karev	:20 Farah Mugal	:20 Behdenna
:40 Saeedghalati	:40 Yakushkina	:40 Yamamichi	:40 Missa

15:00

Short break

15:15

Chair: Todd Parsons

Arne Traulsen: *Somatic evolution in hierarchical tissue structures*

16:15

End of conference

Program Amphithéâtre Maurice Halbwachs

Friday 10

10:00

Short break

10:10

Mini-symposium

Linkage and the limits to selection in experimental sexual populations

Chairs: Henrique Teotonio and Patrick Phillips

:10

Nick Barton: *Linkage and the limits to selection*

:40

Dmitri Petrov: *Population genomics of rapid adaptation*

11:10

Coffee break

11:40

:40

Sophie Péniçon: *Can excessive mutation prevent adaptive evolution?*

:00

Ferran Palero: *Multi-components reaction diffusion systems in population genetics*

:20

Denis Roze: *Effects of interference between selected loci in partially inbred populations*

12:40

Lunch

14:00

Contributed talks

Proposed Chair: Ido Pen

:00

Gaël Raoul: *Effect of a spatial structure in a population facing a climate change*

:20

Pete Trimmer: *Predicting behavioural responses to rapidly-altered environments: state-dependent detection theory*

:40

Mohammadkarim Saeedghalati: *Age as the main factor in shaping the rank abundance distribution of human gut microbiome.*

15:00

Short break

Program Amphithéâtre Guillaume Budé

Friday 10

10:00

Short break

10:10

Mini-symposium

Complex adaptive and evolutionary models in biology

Chairs: Nicolas Lanchier and Yun Kang

:10

Rick Durrett: *heterogeneity in the spatial Moran model and the cancer field effect*

:40

Jim Cushing: *Environmental change and life history strategies: cannibalism and reproductive synchrony*

11:10

Coffee break

11:40

:40

Yun Kang: *Co-evolutionary dynamics of a host-parasite interaction model: obligate v.s. facultative brood*

:00

Eric Lewitus: *A general function of phylogenetic diversification in animals*

:20

G. Sander van Doorn: *Supporting a truce, while fueling the arms race: contrasting effects of intralocus sexual conflict on antagonistic male-female coevolution*

12:40

Lunch

14:00

Contributed talks

Chair: Claus Rueffler

:00

Hélène Leman: *Adaptive dynamics model for individual-based spatially structured populations*

:20

Georgy Karev: *Modeling of natural selection of strategies*

:40

Tatiana Yakushkina: *Evolutionary games with randomly changing payoff matrices*

15:00

Short break

Program Lecture Room 2

Friday 10

10:00

Short break

10:10

Mini-symposium

Competition

Chair: Vlastimil Křivan

:10

Etienne Sirot: *Competition and negotiation over antipredatory vigilance in groups of prey*

:40

Vlastimil Křivan: *Competition driven spatial animal distribution*

11:10

Coffee break

11:40

:40

Klodeta Kura: *A game-theoretical winner and loser model of dominance hierarchy formation*

:00

Krzysztof Argasinski: *Selection under limited population growth. Replicator dynamics and the eco-evolutionary feedback*

:20

József Garay: *Fight between competing predators*

12:40

Lunch

14:00

Contributed talks

Chair: Nick Barton

:00

Franz Baumdicker: *Population genetics of dispensable genes*

:20

Carina Farah Mugal: *The evolution of the allele frequency spectrum during speciation*

:40

Masato Yamamichi: *Effects of genetic architectures on polymorphism dynamics under negative frequency-dependent selection*

15:00

Short break

Program Lecture Room 5

Friday 10

10:00

Short break

10:10

Mini-symposium

The nature of "fitness" in ecology and evolution

Chair: Joanna Masel

:10

Laurent Lehmann: *Does evolution lead to maximizing behavior?*

:40

Joanna Masel: *Eco-evolutionary "fitness" in 3 dimensions: absolute growth, absolute efficiency, and relative competitiveness*

11:10

Coffee break

11:40

:40

Sonja Radosavljevic: *Logistic age-structured population model in a changing environment*

:00

Antoine Frenoy: *Evolution of second-order cooperation by selection for a high mutation rate at cooperative loci: division of labour and the extended phenotype*

:20

Kalle Parvinen: *Unifying adaptive dynamics and inclusive fitness: Evolution of dispersal and cooperation in an extended Hamilton-May model*

12:40

Lunch

14:00

Contributed talks

Proposed Chair: Bhavin Khatri

:00

Arnaud Dragicevic: *Network Price identity*

:20

Abdelkader Behdenna: *Testing for independence between evolutionary processes*

:40

Olivier Missa: *The emergence of biodiversity patterns through deep evolutionary time*

15:00

Short break