CONFERENCE ON MATHEMATICAL MODELING AND CONTROL OF COMMUNICABLE DISEASES

Program

Rio de Janeiro, Brazil, 11-14 January 2016

Escola de Matemática Aplicada
Fundação Getulio Vargas

FGV EMAp
ESCOLA DE MATEMÁTICA APLICADA

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Practical Information

The conference will take place at **FGV/EMAp, Praia de Botafogo 190,** 12th and 10th floors, in the Botafogo neighbourhood of Rio de Janeiro. FGV/EMAp is easily accessible by taxi, bus or Metro from Copacabana and the beach area (Leme, Copacabana, Arpoador, Ipanema, Leblon) and the lagoon area (Jardim Botânico, Gávea) and the bay area (Botafogo, Flamengo, Glória).

Please be aware that entrance to FGV is not allowed to people wearing flip flop or shorts. Otherwise casual standards are perfectly welcome.

Touristic Information:
Information about Rio can be found here City Official Guide.
Or check TripAdvisor, What to do

Restaurants:
Check TripAdvisor, Where to eat
Check Comer & Beber 2015, VEJA Magazine

Transport Information: Information about buses and metro lines can be found here: Vá de ônibus

Useful Telephone Numbers:
FGV/EMAp: +55 21 3799-5917, FGV Reception: +55 21 3799-5938
Police: 190, Public Ambulance: 192, Fire Office: 193

TIME SCHEDULE

January 11th	*8:45-9:15*	*Opening*	Auditorium 12th floor
	9:15-11:45	Mini-course Karl Sigmund A mini-course on evolutionary games	
	11:45-13:15	*Lunch*	
	13:15-15:45	Mini-course Michael Y. Li Large-Scale Epidemic Models and a Graph-Theoretic Method for Constructing Lyapunov Functions	
	15:45-16:15	*Coffee-break*	
	16:15-18:45	Mini-course Patrick De Leenheer A patched Ross-Macdonald malaria model with movement by hosts and vectors: implications for control	
January 12th	9:00-9:45	Plenary Mercedes Pascual Deconstructing SIR: urban space and strain structure in infectious disease dynamics	Auditorium 12th floor
	9:45-10:30	Plenary Aaron King Methods for efficient statistical inference of stochastic dynamical systems	
	10:30-11:00	*Coffee-break*	
	11:00-13:00	Session TuM - Global pandemic threats	
	13:00-14:30	*Lunch*	
	14:30-15:15	Plenary Eduardo Massad Mathematical Models for Criminal Careers	
	15:15-16:00	Plenary Cláudia T. Codeço Syndemics as a positive agenda for disease modeling	
	16:00-16:30	*Coffee-break*	
	16:30-17:30	Session TuA1 - Methodological issues	Room 1013
	16:30-17:50	Session TuA2 - Vector-borne diseases	Room 1014
January 13th	9:00-9:45	Plenary Nick F. Britton A transparent approach to R_0 in structured populations	Auditorium 12th floor
	9:45-10:30	Plenary Nicolas Bacaër Epidemic models in a periodic or random environment	
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	19:30	*Conference Dinner*	Fogo de Chão
January 14th	9:00-9:45	Plenary Christl Donnelly The West African Ebola Epidemic Understanding Epidemiology and Informing Control	Auditorium 12th floor
	9:45-10:30	Plenary Vittoria Colizza Facing the complexity of infectious disease spread: the MERS case	
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	11:00-12:00	Session ThM1 - Control of dengue and arboviruses II	Room 1013
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	16:00-16:45	Plenary Bernard Cazelles Statistical and Mathematical Modeling for a Better Understanding of Dengue Dynamics in Southern Asia	
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Detailed Conference Program

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Kenji Mizumoto, The University of Tokyo, Japan

19 ***11:20-11:40:*** Joint quantification of the transmission and severity: A case study of Ebola virus disease in West Africa, 2015
Hiroshi Nishiura, The University of Tokyo, Japan

20 ***11:40-12:00:*** Effectiveness of ring vaccination as a control strategy for Ebola virus disease
Adam J. Kucharski, Centre for the Mathematical Modelling of Infectious Diseases, Department of Infectious Disease Epidemiology, London School of Hygiene & Tropical Medicine, UK,

21 ***12:00-12:20:*** Transmission dynamics and final epidemic size of Ebola Virus Disease outbreaks with varying interventions
Attila Dénes, Bolyai Institute, University of Szeged, Hungary

22 ***12:20-12:40:*** Predicting the international spread of Middle East respiratory syndrome (MERS)
Kyeongah Nah, The University of Tokyo, Japan

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Davide Rasella, Fiocruz, Brazil

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Nabil Nassif, American University of Beirut, Lebanon

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Thomas N. Vilches, Programa de Pós-graduação em Biometria, Unesp, Brazil

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Helio Schechtman, Fundação Oswaldo Cruz, Brazil

49 ***11:40-12:00:*** Bednets with insecticide effects in *Anopheles* population
Franciane Azevedo, University of Sao Paulo, Brazil,

50 ***12:00-12:20:*** *Aedes aegypti* mosquito control on immature and adult stages along the seasons, using a model with dependence of rainfall: a multiobjective approach
Amália Soares Vieira de Vasconcelos, Centro Federal de Educação Tecnológica de Minas Gerais, Brazil

52 ***12:20-12:40:*** Ensuring successful introduction of *Wolbachia* in natural populations of *Aedes aegypti* by means of feedback control
M. Soledad Aronna, Escola de Matemática Aplicada, Fundação Getulio Vargas, Rio de Janeiro, Brazil

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Ryosuke Omori, Hokkaido University, Japan

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Juliana Marta R. Souza, UNICAMP, Brazil

60 ***12:00-12:20:*** Some remarks on the uncertainty analysis of R_0 in the SIR model
Leonardo S. Bastos, Program for Scientific Computing (PROCC), Oswaldo Cruz Foundation, Brazil

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Cezar Santos, EPGE/FGV-Rio, Brazil

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Wuryatmo A. Sidik, Soedirman University Purwokerto, Indonesia

Conference Dinner - 19:30, Fogo de Chão Restaurant: Av. Reporter Nestor Moreira, no number, Botafogo (see map). *The dinner is included in the Full Registration fee. Drinks (alcoholic and non alcoholic) are not included. Supplementary tickets may be purchased at the reception desk.*

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Gauthier Sallet, Université de Lorraine, France

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Julio Albinati, Universidade Federal de Minas Gerais, Brazil

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Claudia Pio Ferreira, Depto de Bioestatística, IBB/Unesp, São Paulo, Brasil

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Kinoshita, Ryo, The University of Tokyo, Japan

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Máderson Alvares de Souza Cabral, Universidade Federal de Minas Gerais, Brazil

85 Impact of Social Pressure in Epidemic Dynamics with Vaccination
Marcelo A. Pires, Universidade Federal Fluminense, Niteroi/RJ, Brazil,

87 Using ecological multiplex networks to model infection spreading in multi-host systems
Cecilia S. Andreazzi, Fundação Oswaldo Cruz and Universidade de São Paulo, Brazil

89 Comparison of vaccination strategies in an epidemic scenario
Caio Luiz Tavares Freire Jardim, Federal University of the Valleys of Jequitinhonha and Mucuri, Brazil

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Daniel A. Rodríguez-Pinzón, Universidad de Los Andes, Colombia

92 Finite population evolutionary game for water supply sanitation boards
Rocio Botta, Polytechnic School, National University of Asunción, Paraguay

94 Insecticide Resistance and its impact in Dengue fever epidemics
Crysttian Arantes Paixão, Universidade Federal de Santa Catarina, Curitibanos, Santa Catarina, Brasil,

96 Combining individual based model with flood hazard mapping towards preliminary dengue fever risk assessment
Crysttian Arantes Paixão, Universidade Federal de Santa Catarina, Curitibanos, Santa Catarina, Brasil,

98 Estimating *Aedes aegypti* population size from marking, release and recapture (MRR) experiments: challenges and advances
Gabriela A. Garcia, Fundação Oswaldo Cruz, Departamento de Entomologia, Laboratóorio de Mosquitos Transmissores de Hematozórios, Rio de Janeiro, Brazil

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Bruna C. dos Santos, University of São Paulo, Brazil

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Glauston Roberto Teixeira de Lima, Cemaden - Brazilian Centre for Monitoring and Warnings of Natural Disasters, Brazil

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Christian Schaerer, Universidad Nacional de Asunción, Paraguay

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