EIGHTH WORKSHOP

"DYNAMICAL SYSTEMS APPLIED TO BIOLOGY AND NATURAL SCIENCES" (DSABNS)

JANUARY 31st TO FEBRUARY 3rd, 2017

ÉVORA UNIVERSITY

SCIENTIFIC PROGRAM

DSABNS2017

CMAF-CIO (FCUL) | LISBON UNIVERSITY
CIMA (UE) | ÉVORA UNIVERSITY
CMA (FCT UNL) | NOVA UNIVERSITY OF LISBON

Early registration on Jan. 30th, for those already in the Hotel Dom Fernando, from 18:30 - 19:30.

		JANUARY 31st 2017						
08:30 – 09:00	Registration							
		Amphitheater 131		Seminar room 119		Seminar room 120		Seminar room 124
09:00 – 09:30	Opening							
	Chair: Nico Stollenwerk							
09:40 – 10:30	Julyan Cartwright	The spark of life: the physics of how the Earth went from geology and chemistry to biology	--	--	--	--	--	--
10:30 – 11:00	Coffee Break							
	"Statistics" Chair: Nico Stollenwerk			"Ecology I" Chair: Ezio Venturino		"Time-delay and Spatial Modeling" Chair:Malay Banerjee		"HIV Modeling" Chair: Alberto Pinto
11:00 – 11:30	Russell Alpizar	Estimating *Aedes aegypti* demographic parameters	Carlos Braumann	General sustainable harvesting models with environmental stochasticity	Yuliya Kyrychko	The role of time delays in gene regulatory networks	Ricard Trinchet	Modelling the suppression of autoimmunity pathogen caused proliferation of T cells
11:30 – 12:00	Hélène Cecilia	A mechanistic model of tsetse fly population dynamics in space and time calibrated on observed data in Senegal	Claude Lobry	Is dispersal always beneficial to carrying capacity? New insights from the multi-patch logistic equation	Moitri Sen	Spatio-temporal Holling type-IV and Leslie type model: existence and non-existence of spatial pattern	Cristiana Silva	Stability and optimal control of an HIV model with intracellular and pharmacological delays
12:00 – 12:30	Luís Mateus	Prediction and predictability in population biology	Francisco J. Cao	Effects of harvesting and competition on the spatial synchrony scales of population fluctuations	Raquel Filipe	What if they swim?	Ana Carvalho	The importance of synaptic transmission in HIV infection
12:30 – 13:00	Adilson Silva	Variance components estimation in mixed linear models - the method sub-d and sub-di	Iulia Martina Bulai	A mathematical model for an olive tree	Radouane Yafia	Pattern formation for a predator-prey model with Holling type II functional response and cross-diffusion	Bruno Oliveira	CD4^{+} T cells and Tregs stability analysis
13:00 – 14:30	Lunch							
	Chair: Konstantin Blyuss							
14:30 – 15:20	Andrea Pugliese	Modelling the population dynamics of an insect pest	--	--	--	--	--	--
15:20 – 16:10	Ezio Venturino	Control models for the mosaic virus disease in *Jatropha curcas* plants	--	--	--	--	--	--
16:10 – 16:40	Coffee Break							
	Chair: Maíra Aguiar							
16:40 – 17:30	Malay Banerjee	Harmless maturation delay in prey-predator type interactions	--	--	--	--	--	--
17:30 – 18:10	Edy Soewono	Dynamical analysis and control management model of mosquito resistance to insecticides	--	--	--	--	--	--

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		FEBRUARY 1st 2017				
		Amphitheater 131		**Seminar room 119**		**Seminar room 120**
		Chair: Maíra Aguiar				
09:00 – 9:50	Bernard Cazelles	Epidemics modeling using stochastic time varying parameters and Bayesian framework	--	--	--	--
09:50 – 10:40	Constantinos Siettos	Bridging "would be" agent-based worlds with the emergent real-world epidemic dynamics	--	--	--	--
10:40 – 11:10				Coffee Break		
		"Evolution and Bifurcations" Chair: Max Souza	"Infectious Diseases and Time-delay" Chair: Andrea Pugliese		"Theoretical Epidemiology and Evolution" Chair: Paula Patrício	
11:10 – 11:40	Fabio Chalub	The Kimura equation	Eugene Postnikov	Weather forecast as a quantitative predictor for common cold	Erida Gjini	Incorporating evolutionary dynamics into infection models with antibiotic treatment
11:40 – 12:10	Cezary Olszowiec	Chaos and global bifurcations in the Rock-Scissors-Paper bimatrix game	Abdessamad Tridane	Mathematical model of containing MERS-Corona virus	Ramses Djidjou-Demasse	Steady state concentration for an evolutionary epidemic system
12:10 – 12:40	Francesca Scarabel	New prospects for the numerical bifurcation analysis of nonlinear delay equations	Anastasia Lavrova	Bilogistic model for disease and virulence dynamics of *M. tuberculosis* in Russia	Sten Madec	A slow-fast dynamic decomposition links neutral and non-neutral coexistence in interacting multi-strain pathogens
12:40 – 13:10	J. Leonel Rocha	Big bang bifurcations and Allee's dynamics in generic population size functions	Ferdinand Pfab	A method to simplify modeling of temperature dependent maturation delays and its application to a host-parasitoid model	Francisco Dionísio	Harmful behavior mediated by pathogens and parasites
13:10 – 14:50				Lunch		
		Chair: Bob W. Kooi				
14:50 – 15:40	Konstantin Blyuss	New insights into mathematics of immune responses	--	--	--	--
15:40 – 16:30	Roeland Merks	Cell-based modeling of tissue-level responses to mechanical strain	--	--	--	--
16:30 – 17:00				Coffee Break		
		Chair: Roeland Merks				
17:00 – 17:50	Elizabeta Vergu	Cattle trade network in France: analysis and prediction to inform epidemiological risk	--	--	--	--
17:50 – 19:50				WELCOME DRINKS AND POSTER SESSION		

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FEBRUARY 2nd 2017								
		Amphitheater		Seminar room 119		Seminar room 120		Seminar room 124
	Chair: Constantinos Siettos							
09:00 – 9:50	Eduardo Massad	Modelling the risk of introduction of urban yellow fever, Zika virus and chikungunya fever in Aedes infested areas	--	--	--	--	--	--
	"Dengue Fever" Chair: Edy Soewono		"General Session" Chair: Peyman Ghaffari		"Vaccines" Chair: Luís Mateus		"Ecology II" Chair: Russell Alpizar	
09:50 – 10:20	Dipo Aldila	Dengue control analysis in multi-patchy environment	Luís Silva	Bifurcations of 2-periodic non autonomous stunted tent systems	Paulo Doutor	Rational behavior and social cost for vaccination in childhood diseases	Jorge Orestes Cerdeira	A model to minimize costs and promote species persistence under climate change
10:20 – 10:50	Michael Schreiber	Serotyping acute dengue infections	Urszula Skwara	On stochastic models of vector borne diseases	José Martins	Evolutionary dynamics of vaccination games	Patrícia Filipe	Multiphasic SDE model: an application to cattle growth
10:50 – 11:20	Sandra B. Maier	Optimal vaccination age for dengue in Brazil with a tetravalent dengue vaccine	Filipe Martins	Non-linear evolutionary matrix models with multiple trait	Paula Patrício	Barrier vaccination	Nuno Brites	Sustainable fisheries management in random environments: Fox model
11:20 – 11:50	Coffee Break							
	Chair: Bernard Cazelles							
11:50 – 12:40	Maíra Aguiar	Modeling the impact of the newly licensed dengue vaccine in endemic countries	--	--	--	--	--	--
12:40 – 13:30	Nicolas Baurin	Potential impact of dengue vaccination in different endemic settings	--	--	--	--	--	--
13:30	LUNCH							
	FREE AFTERNOON							
20:00	WORKSHOP DINNER: COZINHA DO CARDEAL							

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		FEBRUARY 3rd 2017				
		Amphitheater 131		**Seminar room 119**		**Seminar room 120**
		Chair: Carlos Braumann				
09:00 – 9:50	Mats Gyllenberg	Finite dimensional state representation of structured population models	--	--	--	--
09:50 – 10:40	Jürgen Vollmer	Quasi-tight coupling: why do we see it? When would we expect it?	--	--	--	--
10:40 – 11:10	Coffee Break					
		Chair: Eduardo Massad				
11:10 – 12:00	Nico Stollenwerk	Chaos via torus destruction in models of dengue fever and predator-prey systems, implications for data analysis	--	--	--	--
12:00 – 12:50	Istvan Kiss	On bounding exact models of epidemics on networks	--	--	--	--
12:50 – 14:30	Lunch					
		"Vector Borne Diseases" Chair: Maíra Aguiar		"Optimal Control in Epidemiology" Chair:Edy Soewono		"Blood, Fluids and Chemistry" Chair: Julyan Cartwright
14:30 – 15:00	Max Souza	Controlling urban arboviruses with *Wolbachia*: from theory to data	Karunia Putra Wijaya	Multiobjective optimal control problems arising from epidemiology	Silvana Cardoso	Self-mixing in the Earth's atmosphere, oceans, and subsurface
15:00 – 15:30	Hyun Mo Yang	Mathematical modelling in dengue epidemics encompassing transovarial transmission	Chakib Jerry	A controlled mathematical model for population dynamics in infested honey bees colonies	Fernando Carapau	Axisymmetric flow of a generalized Newtonian fluid in a straight pipe using a director theory approach
15:30 – 16:00	Aline de Koeijer	Comparative risk assessment of vector-borne infections	Peyman Ghaffari	Using optimal control theory in case of mosquito repellents and vaccinations applied to dengue disease prevention and reduction management, a first analytically treatable toy model	Sanjay Lamba	Complexity and regulation of nitrogen biochemical systems
16:00 – 16:30	Coffee Break					
		Chair: Nico Stollenwerk				
16:30 – 17:20	Bob W. Kooi	Ecosystem competition and predation modelling and model analysis	--	--	--	--
17:20 – 18:10	Ulrike Feudel	Biodiversity of plankton - non-equilibrium coexistence of competing species	--	--	--	--
18:10 – 18:30	Closing					

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