

# SEVENTH WORKSHOP

"DYNAMICAL SYSTEMS APPLIED TO  
BIOLOGY AND NATURAL SCIENCES"

2-5 FEBRUARY 2016

CIMA | ÉVORA UNIVERSITY

PROGRAM

**DSABNS2016**

CMAF-CIO | LISBON UNIVERSITY  
CIMA | ÉVORA UNIVERSITY  
CMA | NOVA UNIVERSITY

**FEBRUARY 2nd 2016**

<b>09:00 - 09:30</b>	<b>Registration</b>					
	<b>Amphitheater 1</b>		<b>Room 131</b>		<b>Room 133</b>	
<b>09:30 - 09:50</b>	<b>Opening</b>					
	<b>Chair: Maíra Aguiar</b>		--		--	
<b>09:50 - 10:40</b>	<b>Carlos-Castillo-Chavez</b>	<b>Ebola, Influenza, SARS and TB: Lessons learned for mitigating the impact to future outbreaks and pandemics</b>	--	--	--	--
<b>10:40 - 11:00</b>	<b>Coffee Break</b>					
	<b>Chair: Carlos Braumann</b>		<b>Chair: Ezio Venturino</b>		<b>Chair: Fabio Chalub</b>	
<b>11:00 - 11:50</b>	<b>Odo Diekmann</b>	<b>Dangerous connections : On binding site models of infectious disease dynamics</b>	--		--	--
<b>11:50 - 12:20</b>	<b>Russell Alpizar-Jara</b>	<b>An overview on integrated population dynamics models</b>	<b>Natalia Petrovskaya</b>	<b>Patchy invasion of alien species in the presence of long-distance dispersal</b>	<b>Paula Rodrigues</b>	<b>Modelling tuberculosis transmission: the role of heterogeneity in susceptibility to infection</b>
<b>12:20 - 12:50</b>	<b>David Greenhalgh</b>	<b>Backward bifurcation, equilibrium and stability phenomena in a three stage extended brsv epidemic model</b>	<b>Sara Bernardi</b>	<b>A mathematical model for viral infections in <i>Apis Mellifera</i> beehives transmitted by the <i>Varroa Destructor</i> mite</b>	<b>Cristiana Silva</b>	<b>The effect of migration on tuberculosis epidemic</b>
<b>12:50 - 13:20</b>	<b>Pablo Sommer</b>	<b>Hopf and torus bifurcations in stochastic systems in mathematical population biology</b>	<b>Anuj Kumar</b>	<b>Role of optimal screening and treatment on infectious diseases</b>	<b>Schehrazad Selmane</b>	<b>Dynamic Transmission of Cutaneous Leishmaniasis</b>
<b>13:20 - 15:00</b>	<b>Lunch</b>					
	<b>Chair: Nico Stollenwerk</b>		--		--	
<b>15:00 - 15:50</b>	<b>Teresa Faria</b>	<b>Persistence and stability for some cooperative population models with delays</b>		--		--
<b>15:50 - 16:40</b>	<b>Thomas Gotz</b>	<b>Optimal control and applications in Biomath</b>				--
<b>16:40 - 17:10</b>	<b>Coffee Break</b>					
	<b>Chair: Luís Mateus</b>		--		--	
<b>17:10 - 18:00</b>	<b>Bob W. Kooi</b>	<b>Sensitivity analysis and bifurcation analysis</b>		--		
<b>18:00 - 20:00</b>	<b>Poster Session &amp; Happy Hour</b>					<b>DSABNS2016</b>

**FEBRUARY 3rd 2016**

	<b>Amphitheater 1</b>	<b>Room 131</b>	<b>Room 133</b>
	<b>Chair: Russell Alpizar-Jara</b>	--	--
<b>09:00 - 9:50</b>	<b>Manoel Molina</b> <b>Two-sex branching populations</b>	--	--
<b>09:50 - 10:40</b>	<b>Carlos Braumann</b> <b>Population growth in a random environment: How wrong are approximate models?</b>	--	--
<b>10:40 - 11:20</b>	<b>Coffee Break</b>		
	<b>Chair: Luís Mateus</b>	<b>Chair: Paula Rodrigues</b>	--
<b>11:20 - 11:50</b>	<b>Carlos Ramos</b> <b>Ontogenesis and phylogenesis of discrete dynamical systems: developments in cellular automata</b>	<b>Raquel Barreira</b> <b>Cross-diffusion-induced patterns for reaction diffusion systems</b>	--
<b>11:50 - 12:20</b>	<b>Telmo Peixe</b> <b>Polymatrix Games and Replicators</b>	<b>Jean-Baptiste Burie</b> <b>Asymptotic behaviour of an age and infection age structured model</b>	--
<b>12:20 - 12:50</b>	<b>Filipe Martins</b> <b>A Bifurcation Theorem for Evolutionary Matrix Models</b>	<b>Alessandra Ragusa</b> <b>An index monitoring the sensitivity to Desertification: ESPI</b>	--
<b>12:50</b>	<b>LUNCH</b>		
<b>14:50</b>	<b>SOCIAL PROGRAM: GUIDED VISIT TO ÉVORA (meeting point: Tourist Office)</b>		

**FEBRUARY 4TH 2016**

	<b>Amphitheater 1</b>		<b>Room 131</b>		<b>Room 133</b>	
	<b>Chair: Bob W. Kooi</b>		--		--	
<b>09:00 -09:50</b>	<b>Bobby Reiner</b>	<b>Estimating serotype-specific dengue virus force of infection and temporary cross immunity using longitudinal serological data</b>	--		--	
<b>09:50 - 10:40</b>	<b>Nico Stollenwerk</b>	<b>Power law jumps and power law waiting times, fractional calculus and human mobility in epidemiological systems</b>	--		--	
<b>10:40 - 11:10</b>	<b>Coffee Break</b>					
	<b>Chair: Maíra Aguiar</b>		<b>Chair: Paula Rodrigues</b>		<b>Chair: Ezio Venturino</b>	
<b>11:10 - 11:40</b>	<b>Sofia Rodrigues</b>	<b>Optimal control for a dengue scenario with two serotypes:</b>	<b>Erida Gjini</b>	<b>How classical and adaptive regimes interact with host immunity in antibiotic treatment of resistant infections</b>	<b>Yadigar Sekerci Firat</b>	<b>Mathematical Modelling of Spatiotemporal Plankton-Oxygen Dynamics under the Climate Change</b>
<b>11:40 - 12:10</b>	<b>Luís Mateus</b>	<b>Estimating the efficacy of a candidate dengue vaccine</b>	<b>Alberto Pinto</b>	<b>A dynamical model of immune response by t cells</b>	<b>Urszula Skwara</b>	<b>Modelling epidemiological spreading via spatio-temporal fractional systems</b>
<b>12:10 - 12:40</b>	<b>Hyun Mo Yang</b>	<b>Quiescence eggs and vertical transmission - are they important in dengue transmission?</b>	<b>Thomas Wester</b>	<b>Mathematical Modeling: Immune System Dynamics in the Presence of Cancer and Immunodeficiency in vivo</b>	<b>Ishtiaq Ali</b>	<b>An efficient numerical scheme for carcinogenesis mutations models based on reaction-diffusion equations with time delay</b>
<b>12:40 - 13:10</b>	<b>José Martins</b>	<b>The existence of multiple decisions for vaccination in the reinfection siri model</b>	<b>Yuliya Kyrychko</b>	<b>Dynamics of neural networks with discrete and distributed time delays</b>	<b>Elena Almaraz</b>	<b>On the time to reach a critical number of infections in recurrent epidemic models</b>
<b>13:10 - 14:40</b>	<b>Lunch</b>					
	<b>Chair: Fabio Chalub</b>		--		--	
<b>14:40 - 15:30</b>	<b>Konstantin Blyuss</b>	<b>Mathematical insights into RNA interference</b>	--		--	
<b>15:30 - 16:20</b>	<b>Ezio Venturino</b>	<b>A mathematical model for goat farms affected by two strains of caprine arthritis encephalitis</b>	--		--	
<b>16:20 - 17:00</b>	<b>Coffee Break</b>					
<b>20:00</b>	<b>Workshop Dinner: (meeting point: ex-Celeiros da EPAC, Rua de Eborim)</b>					

**FEBRUARY 5TH 2016**

	<b>Amphitheater 1</b>	<b>Room 131</b>	<b>Room 133</b>
	<b>Chair: Bob W. Kooi</b>	--	--
<b>09:00 - 09:50</b>	<b>Gustavo Olivera</b> The role of indirect protection in the assessment of dengue vaccination impact	--	--
<b>09:50 - 10:40</b>	<b>Maíra Aguiar</b> Feels right, but it's so wrong: The impact of empirical data analysis on public health practical intervention	--	--
<b>10:40 - 11:10</b>	<b>Coffee Break</b>		
	<b>Chair: Russell Alpizar-Jara</b>	--	--
<b>11:10 - 12:00</b>	<b>Fábio Chalub</b> Optimal Vaccination Strategies and Rational Behavior in Seasonal Epidemics	--	--
<b>12:00 - 12:50</b>	<b>Fernando Fontanari</b> When more of the same is better	--	--
<b>12:50 - 14:30</b>	<b>Lunch</b>		
	<b>Chair: Nico Stollenwerk</b>		
<b>14:30 - 15:20</b>	<b>Malay Banerjee</b> Spatio-temporal pattern formation: effect of nonlocal interactions	--	--
	<b>Chair: Nico Stollenwerk</b>	<b>Chair: Carlos Braumann</b>	
<b>15:20 - 15:50</b>	<b>Max Souza</b> Evolution of insecticide resistance	<b>Fernando Carapau</b>	<b>A one-dimensional model for blood flow based on cosserat theory</b>
<b>15:50 - 16:20</b>	<b>Karola Shaefer</b> Insect-Proofing of Textiles to Prevent Vector-borne Diseases	<b>Joaquim Correia</b>	<b>Modelling, Analysis and Simulations of Coagulant Fluids</b>
<b>16:20 - 16:50</b>	<b>Peyman Ghaffari</b> Avant-garde mosquito repellent Technologies based on nano-technology and micro capsules in combating vector-borne diseases	<b>Marília Pires</b>	<b>A variante of the Oldroyd-B viscoelastic model applied to blood flow</b>
<b>16:50 - 17:20</b>	<b>Coffee Break</b>		
	<b>Chair: Maíra Aguiar</b>	--	--
<b>17:20 - 18:10</b>	<b>Sergei Petrovskii</b> Statistical mechanics of individual animal movement	--	
<b>18:10 - 18:20</b>	<b>Closing</b>		

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