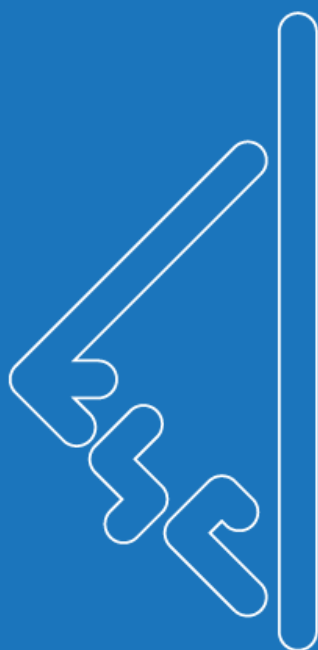


2019

22 Juillet
02 Août



**INSTITUT
D'ÉTUDES
SCIENTIFIQUES
DE CARGÈSE**



FLUIDS AND HEALTH 2019: THE FLUID DYNAMICS OF DISEASE TRANSMISSION

**Lydia BOUROUBA,
MIT, Cambridge,
Massachusetts, US**

Direction scientifique :
Fabrice Mortessagne

Contact :
Dominique Donzella
tél : 04 95 26 80 40

www.iesc.univ-corse.fr



Human Health Applications

Tuesday (23th)		Wednesday (24th)		Thursday (25th)		Friday (26th)		Saturday (27th)	
8:00 - 8:15	Opening remarks – W1								
8:15 - 9:15	Reflections on major challenges posed by major microbial threats – Dr. James Hughes	8:00 - 9:00	Overview of infection control – Dr. Howard Heller	8:00 - 9:30	A Brownian particle hitting a small target: II. The narrow exit approximation – Prof. Jean-Luc Thiffeault	8:00 - 9:30	Ventilation flows in buildings and infection: Applications – Prof. Andrew Woods	8:00 - 8:45	HIV and fluids – Dr. Howard Heller
9:15 - 10:15	Fluids and health – Prof. Lydia Bourouiba	9:00 - 10:30	The fluid dynamics of respiratory disease transmission – Prof. Lydia Bourouiba	9:30 - 10:30	Breathing is not as simple as it looks: Fundamentals of respiratory physiology – Prof. Jose Venegas	9:30 - 10:45	Emerging microbial threats & antimicrobial resistance: Importance of the OneHealth approach – Dr. James Hughes	8:45 - 10:15	Pulmonary deposition of inhaled aerosol particles – Prof. Jose Venegas
10:15 - 10:30	Break							10:15 - 10:30	Break
10:30 - 11:45	Influenza virus and evolution of a pandemic – Dr. Taronna Maines	10:30 - 10:45	Break	10:30 - 10:45	Break	10:45 - 11:00	Break	10:30 - 11:00	Transport in high frequency ventilation – Dr. Eliram Nof
		10:45 - 11:45	Rheology and rheometry – Prof. Corneliu Balan	10:45 - 12:00	Exhalations: Relevant facts, unanswered questions and general motivation – Prof. Emmanuel Villermaux	11:00 - 12:00	Environmental reservoirs & management, including Multidrug-Resistant Organisms – Dr. Pierre Parneix	11:00 - 12:00	WG final presentations – Week 1
	Participant introductions	11:45-12:00	Group picture – Week 1						
11:45 - 13:00	Lunch	12:00-13:00	Lunch	12:00 - 13:00	Lunch	12:00 - 13:00	Lunch	12:00 - 14:00	(Selection committee meeting: 12:00-12:15) Lunch + prize ceremony + closing remarks for Week 1
13:00 - 14:00	Back to the future: Time for a renaissance in public health engineering – Dr. Rick Gelting	13:00 - 14:45	Demos/WG/ discussions	13:00 - 14:45	Demos/WG/ discussions	13:00 - 14:30	Bacterial biofilm and microrheology – Prof. Nelly Henry		
14:00 - 15:00	Interdisciplinary efforts in public health: Successes and failure – Dr. Howard Heller								
15:00 - 15:15	Break	14:45 - 15:45	Air transmission and it's prevention: current practice, policies, and challenges – Dr. Pierre Parneix	14:45 - 15:45	Air quality and infection control – Dr. Pierre Parneix	14:30 - 16:15	Demos/WG/ discussions		
15:15 - 16:15	Panel on research translation in human health: successes and failures – Drs M. Gray, H. Heller, H. Hughes, P. Parneix, D. Oryang, T. Maines, R. Gelting	15:45 - 16:00	Break	15:45-16:00	Break	16:15 - 16:30	Break		
16:15 - 17:45	Role play/case study – preparation for Working Groups (WG)	16:00 - 17:15	Laboratory models of influenza virus – Dr. Taronna Maines	16:00-17:15	Ventilation flows in buildings and infection: Fundamentals – Prof. Andrew Woods	16:30 - 18:00	WG (refreshments available)	Rest of the afternoon/evening	Selected outing – hike/tour/boat/etc. (ign-up sheet to fill by end of Tuesday at registration desk.)
17:45 - 18:15	Flash contributed talks W1-1	17:15 - 18:30	WG (refreshments available)	17:15 - 18:30	WG (refreshments available)	18:00 - 18:15	WG reporting		
18:15 -	Welcome reception and continuation of discussions	18:30 - 18:45	WG reporting	18:30 - 18:45	WG reporting				
		18:45 - 19:45	A Brownian particle hitting a small target: I. Fundamentals – Prof. Jean-Luc Thiffeault	18:45 - 19:15	Flash contributed talks W1-2				
				19:15 -	Wine & cheese and discussions				
		20:00 -	Lecturer appreciation dinner						

Human Health/Environment, Plant Health, and Food Safety

Monday (29th)		Tuesday (30th)		Wednesday (31st)		Thursday (1st)		Friday (2nd)	
8:15 - 8:30	Opening remarks – W2								
8:30 - 9:30	Overview of recent FDA investigations to mitigate chemical and biological hazards in fluid products – Dr. William Jones	8:00 - 9:30	Tales of stirring and mixing across multiple scales – Prof. Jeff Koseff	8:00 - 9:30	Mixing toolbox – Prof. Emmanuel Villemaux	8:00 - 9:30	Biofilm micro-rheology and response to shear – Prof. Nelly Henri	8:00 - 9:00	Particle dispersal in the environment: particle effects in air and free surface flows: Part II – Dr. Michelle DiBenedetto
9:30-10:30	Environmental assessments of irrigation water related to foodborne outbreaks - Dr. Rick Gelting	9:30 - 10:45	Boundary layers and their application in health, agriculture, and the environment – Dr. Tracy Mandel	9:30- 9:45	Break	9:30- 9:45	Break	9:00 - 10:00	Transport and dispersion of scalars in the near-coastal environment – Prof. Jeff Koseff
10:30 - 11:00	QA & break	10:45 - 11:00	Break	9:45 - 11:15	Particle dispersal in the environment: particle effects in air and free surface flows: Part I – Dr. Michelle DiBenedetto	9:45 - 12:00	Demos/WG/ discussions	10:00- 10:15	Break
11:00 - 12:00	Water and produce food safety along the farm to fork continuum - Dr. David Oryang	11:00 - 12:00	Fresh produce washing – Prof. Arne Pearlstein	11:15 - 12:15	Atmospheric dispersal of plant pathogens over multiple spatial and temporal scales: Part II – Dr. Don Aylor	12:00 - 13:15	Lunch	10:15 - 11:15	The evaporation of dense sprays: misconceptions, mixing analogy, and applications – Prof. Emmanuel Villemaux
12:00-12:15	QA & Intro (new) participants	12:00 - 13:15	Lunch and discussions	12:15 - 13:30	Lunch	13:15-14:15	Rheological characterization of biofluids – Prof. Corneliu Balan	11:15 - 12:15	Water-to-air transfer: Bubbles at contaminated interfaces – Prof. Lydia Bourouiba
12:15 - 14:00	Lunch and discussions	13:15-13:30	Group picture – Week 2	13:30-14:30	Water-mediated transfer of pathogens to crops: The need for mechanistic models – Dr. David Oryang	14:15 - 15:15	Cultivar mixtures – Prof. Sebastien Saint-Jean	12:15 - 14:00	Lunch and discussions
14:00 - 15:00	How research is used to inform guidelines – Dr. William Jones	13:30- 15:00	Atmospheric dispersal of plant pathogens over multiple spatial and temporal scales: Part I – Dr. Don Aylor	14:30 - 16:00	Droplets: from disease transmission to produce washing – Prof. Lydia Bourouiba	15:15 - 15:30	Break	14:00 - 15:00	WG final presentations – Week 2
15:00 - 16:00	Panel on interdisciplinary research & translation in environmental, plant, and public health: successes and failures – Drs William Jones, D. Oryang, R. Gelting, D. Aylor, P. Barneix, H. Heller, J. Koseff	15:00 - 15:45	Wind-mediated transfer of herbicide resistant genes – Dr. David Oryang	16:00 - 16:15	Break	15:30 - 16:30	Re-shaping the relationship between growth rate, transmission & virulence in plant pathogens: Part I – Prof. Ivana Gudelj	15:00 - 16:30	(Selection committee meeting: 15:00-15:15) Prize ceremony + closing conference remarks.
16:00 - 16:15	Break	15:45 - 16:00	Break	16:15 - 17:45	Fluid mechanics of fresh-cut produce washing – Prof. Arne Pearlstein	16:30 - 17:30	Part II – Prof. Ivana Gudelj		
16:15 - 17:45	Discussions and preparation for week 2 Working Groups (WG)	16:00-17:15	Micro and (bio) meteorological measurements: plant physiology & disease – Prof. Sebatien Saint-Jean	17:45- 18:15	Flash contributed talks W2-2				
17:45 - 18:15	Flash contributed talks W2-1	17:15 - 19:00	Demos/WG/ discussions (refreshments available)						
18:15 - 19:45	Reception and continuation of discussions	19:00 - 19:15	WG reports	18:15 –	Discussions & BBQ at institute	17:30 –	Demos/WG/ discussions (refreshments available)		
		20:00 –	Lecturer appreciation dinner						