

International Conference on Complexity in Acute Illness

October 19 - 21, 2006

**Place: Ritz-Carlton Tyson's Corner
Washington, DC**

Program Organizers:

Gilles Clermont, MD, Timothy Buchman, MD, PhD and Yoram Vodovotz, PhD

Intent and Objectives: Defining complexity in acute illness.

Who Should Attend: Clinicians, clinical trainees, mathematician/information scientists, graduate students and post doctoral fellows interested in quantitative approaches to acute illness.

Preliminary Program

THURSDAY, OCTOBER 19

Session I: Acute Illness and Complexity

8:30 a.m.	Welcome and Introductory Remarks	Gilles Clermont, Eddy Neugebauer
8:45 a.m.	Regeneration and healing:a goal of critical care	Alan Russell
9:15 a.m.	Keynote address	Timothy Buchman
9:45 a.m.	Discussion: Challenges facing Critical Care Medicine. (report of the November 2005 workshop)	Tim Buchman, Eddy Neugebauer
10:10 a.m.	BREAK	

Session II: Systems Biology and Complexity

Chairs: Gary An, Anthony Hunt

10:20 a.m.	A Clinician's Perspective on Systems Biology	Gilles Clermont
10:40 a.m.	Of Mathematicians and Biologists	Bard Ermentrout
11:10 a.m.	Perspectives on Complexity	John Doyle
11:40 a.m.	Discussion: Speaking the Same Language	Gary An, Anthony Hunt
12:20 p.m.	LUNCH	

Session III: Modeling Inflammation and Damage

Chairs: Tarynn Witten, Markus Covert

1:30 p.m.	The Unified Response to Pathogens and Tissue Damage	Timothy Billiar
1:55 p.m.	Modeling Inflammation and Damage	Yoram Vodovotz, Jonathan Rubin
2:20 p.m.	Mechanical Implications of Blood as a Bacterial Ecosystem	John Younger
2:45 p.m.	BREAK	
3:00 p.m.	Translational Approach to Modeling Pneumonia Dynamics	Jonathan Dunn
3:25 p.m.	Functional Genomics of Inflammation	Steve Calvano
3:50 p.m.	Discussion: Extracting Knowledge from Information	Tarynn Witten, Markus Covert
4:50 p.m.	ADJOURNMENT	
5:00 p.m.	Annual Meeting of the Society for Complexity in Acute Illness	
7:00 p.m.	Speakers' Reception	

FRIDAY, OCTOBER 20

Session IV: Mathematical Modeling of Organ Function and Dysfunction

Chairs: Timothy Buchman, Mitchell Fink

8:15 a.m.	Cell Failure and Organ Dysfunction	Mitchell Fink
8:40 a.m.	Models of Lung Injury	John Hotchkiss, Phil Crooke
9:05 a.m.	Models of the Cardiovascular System and its Control: Development to Clinical Application	Sven Zenker, Sanjeev Shroff
9:45 a.m.	BREAK	
10:00 a.m.	Prediction Modeling in Neurotrauma	Brahm Goldstein
10:25 a.m.	Organ-organ Crosstalk	Gary An
10:45 a.m.	Mathematical Models Simulating Clinical Trials Outcomes of Sepsis Patients Treated with Xigris®	Steven Chang
11:10 a.m.	Discussion: Modeling Organ Function	Timothy Buchman, Mitchell Fink
11:45 a.m.	Poster Viewing and LUNCH	

Session V: Physiologic Control: theory and practice

Chairs: John Doyle, Marie Csete

1:00 p.m.	Physiological control	Uwe an der Heiden
1:25 p.m.	Modeling metabolic pathways	Joerg Stelling
1:50 p.m.	Model-driven discovery and the NF-kappaB signaling network	Markus Covert
2:15 p.m.	BREAK	
2:25 p.m.	Adaptive Control for Intensive Care Unit Sedation and Operating Room Hypnosis	Wassim Haddad
2:50 p.m.	Glycemic control: an engineering approach	Robert Parker
3:15 p.m.	Discussion: Clinical applications of control	John Doyle, Marie Csete

Session VI: Young Investigators Seminars

Chairs: Gilles Clermont, Eddy Neugebauer

4:00 p.m.	Introduction	
4:05 p.m.	Young Investigators' Presentations	
5:30 p.m.	ADJOURNMENT	
7:00 p.m.	Conference Banquet	

SATURDAY, OCTOBER 21

Session VII: Computational and Methodological Challenges

Chairs: David Bortz, Gary An

8:30 a.m.	Who Should Be Part of the Modeling Team?	Marie Csete
8:55 a.m.	Communication Through Model Sharing: Integrating Community-wide Knowledge	Gary An
9:15 a.m.	Sharing Data and Critical Illness: the German Trauma Registry	Rolf Lefering George Moody
9:40 a.m.	Data and Resource Sharing: the Physionet Project	
10:05 a.m.	BREAK	
10:15 a.m.	Model Selection	David Bortz
10:40 a.m.	Model Verification: from Hardware to Biology	Christopher Langmead
11:05 a.m.	Comparing Models: the FURM Project	Anthony Hunt
11:30 p.m.	Discussion: David Bortz, Gary An	
12:00 p.m.	LUNCH	

Session VIII: The ICU of the Future and Physiological Variability

Chairs: Andrew Seely, Brahm Goldstein

12:50 p.m.	Caring for the Critically Ill: the Knowledge Gap	Andrew Seely
1:10 p.m.	Physiological Bases of Variability	Sven Zenker
1:35 p.m.	Physiology and Complexity	Ary Goldberger
2:00 p.m.	Variability in Clinical Practice	Alan Mutch
2:25 p.m.	Discussion: Andrew Seely, Brahm Goldstein	
3:00 p.m.	ADJOURNMENT	