

The 6th International Conference on Complexity in Acute Illness  
 Complex Systems in Acute Illness: "Fundamental Challenges and Translational Applications"

October 5th, 2007

| Hour   | Name  | Title  |
|--|---|--|
| <b>7:30 - 8:15 am Continental breakfast</b>              |   |  |
| <b>KEYNOTE ADDRESS</b>                                   |   |  |
| <b>8:15 - 8:40 am</b>                                    | <b>Prof. Hiroaki Kitano</b><br>The Systems Biology Institute  | <b>SYSTEMS BIOMEDICINE:<br/>A LEGITIMATE SCIENCE?</b>  |
| <b>8:40 - 8:50 am</b>                                    | <b>Edmund Neugebauer</b><br>SCAI President<br>(Univ. of Witten-Herdecke)                              | <b>Welcome and Opening remarks</b>   |
| <b>Session I.</b><br>Chairs: Co-chairs:                  |   |  |
| <b>8:50 - 10:30 am</b>                                   | <b>John Doyle</b> (Caltech)<br><b>Thomas Petzinger</b><br>(Launchcyte, LLC)                           | <b>Fundamental Aspects of Complex Systems:<br/>From Biology to Business</b>  |
| <b>8:50 am</b>   | <b>John Doyle</b><br>(Caltech)  | <b>Understanding Physiological Variability:<br/>A CDS (control and dynamical systems) Perspective</b>                        |
| <b>9:10 am</b>   | <b>Thomas Petzinger</b><br>(Launchcyte, LLC)  | <b>Complex Systems: Business, Biology, and Beyond</b>  |
| <b>9:30 am</b>   | <b>Michelangelo Celli</b><br>(The Cornucopia Group)   | <b>Business or Biology? : An Inquiry Into Marketplaces as Living<br/>Organisms</b>   |
| <b>9:50 am</b>   | <b>Frederick Busche</b><br>(IBM)  | <b>Complexity in Acute Illness<br/>- A Computational But Curable Headache</b>  |
| <b>10:10 am</b>  | <b>Carson Chow</b><br>(NIDDK)   | <b>Inflammation:<br/>When Bottom Up Meets Top Down</b>   |
| <b>10:30-10:45 am Panel Discussion with Coffee Break</b> |   |  |
| <b>Session II.</b><br>Co-chairs:                         |   |  |
| <b>10:50 - 12:55 am</b>                                  | <b>Wassim Haddad</b><br>(Georgia Tech)<br><b>Edmund Neugebauer</b><br>(University of Witten-Herdecke) | <b>Translational medicine I - Targeted and Individualized<br/>Therapies</b>  |
| <b>10:50 am</b>  | <b>Katherine Verdolini</b><br>(University of Pittsburgh)  | <b>Empirical and Simulation Evidence Around Possible Benefits<br/>of Tissue Mobilization for Wound Healing in the Larynx</b> |
| <b>11:15 am</b>  | <b>Steven Chang</b><br>(Immunetrics)  | <b>Applications of Dynamical Systems Modeling to Clinical Trial<br/>Prediction</b>   |
| <b>11:40 am</b>  | <b>Sven Zenker</b><br>(McGowan Institute)   | <b>Unbiased Representation of Population Variability in<br/>Mechanistic Ensemble Models</b>                                  |

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| 12:05 pm | <b>Marie Csete</b><br>(Emory University) | <b>Early Diagnosis of Sepsis--Biology</b>   |
| 12:30 pm | <b>William Hunt</b><br>(Georgia Tech)    | <b>Early Diagnosis of Sepsis--Technology</b>  |
| 12:55 pm | <b>Wassim Haddad</b><br>(Georgia Tech)   | <b>Adaptive Control for Intraoperative Anesthesia Influenced by Hemorrhage and Hemodilution Effects</b> |

**1:20 - 2:15 pm**

**Lunch**

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| <b>2:30 - 4:55 pm</b> | <b>Session III.</b><br>Co-chairs:<br><b>Timothy Buchman</b><br>(Washington University)<br><b>Gilles Clermont</b><br>(University of Pittsburgh) | <b>Forward and Reverse-Engineering of Biological Networks</b> |
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| 2:30 pm | <b>James Faeder</b><br>(University of Pittsburgh)      | <b>Rule-Based Modeling of Biochemical Networks</b>                       |
| 2:55 pm | <b>Markus Covert</b><br>(Stanford University)          | <b>Integrating Metabolic, Regulatory, and Signal Transduction Models</b> |
| 3:20 pm | <b>David Bortz</b><br>(University of Colorado-Boulder) | <b>Experimental Design and Model Selection</b>                           |
| 3:45pm  | <b>Jorg Stelling</b><br>(ETH-Zurich)                   | <b>Robustness and Intervention in Cellular Networks</b>                  |
| 4:10 pm | <b>Zoltan Oltvai</b><br>(University of Pittsburgh)     | <b>System-Level Functional Organization of Metabolic Networks</b>        |
| 4:35 pm | <b>Steven Calvano</b><br>(UMDNJ)                       | <b>Inflammation: From Celsus to Complex Biology</b>                      |

**5:00 pm**

**Coffee Break**

**5:10 pm**

**SCAI business meeting and elections**

**October 6th, 2007**

| Hour                   | Name  | Title   |
|------------------------|---|---|
| <b>7:30 - 8: 20 am</b> |   | <b>Continental breakfast</b>                                  |
| <b>8:30 - 10:10 am</b> | <b>Session IV.</b><br>Co-chairs:<br><b>Kenneth Mann</b> (University of Vermont)<br><b>Yoram Vodovotz</b> (University of Pittsburgh) | <b>Inflammation and Coagulation: From Pathways to Tissues</b> |
| <b>8:30 am</b>         | <b>Kenneth Mann</b><br>(University of Vermont)  | <b>Tissue Factor, Hemorrhage and Thrombosis</b>               |

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| 8:55 am  | <b>Yoram Vodovotz</b><br>(University of Pittsburgh) | <b>Integrating Computational Simulations and Functional Genomics in Acute Inflammation</b> |
| 9: 20 am | <b>Wolfgang Petrich</b><br>(Roche Diagnostics)      | <b>Clinical Laboratory Diagnostics Without Reagents?</b>                                   |
| 9:45 am  | <b>Jon McDunn</b><br>(Washington University)        | <b>Sepsis-Induced Immune Suppression: Mechanisms and Therapeutic Potential</b>             |
| 10:10 am | <b>Mitchell Cohen</b><br>(UCSF)                     | <b>The Coagulation Network: Structure, Function and Evolution of Complexity</b>            |

10:10-10:25 am

Coffee Break

**Session V.**

Co-chairs:

10:30 am - 12:55 pm **Adam Seiver** (Respironics)  
**Andrew Seely**  
(University of Ottawa)

**Translational Medicine II - The ICU of the Future**

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| 10:30 am | <b>Timothy Buchman</b><br>(Washington University)                  | <b>Future Possibilities and Possible Futures: Trajectories and Horizons in Critical Illness and Critical Care</b> |
| 10:55 am | <b>Adam Seiver</b><br>(Respironics)                                | <b>Critical Care Telemedicine: Challenges and Opportunities</b>   |
| 11:20 am | <b>Andrew Seely</b><br>(University of Ottawa)                      | <b>Complexity, Uncertainty and Variability</b>  |
| 11:45 am | <b>Leopoldo Cancio</b><br>(US Army Institute of Surgical Research) | <b>Combat Casualty Care on the Current and Future Battlefield: What is the Role for Complexity Science?</b>       |
| 12:10 pm | <b>Brahm Goldstein</b><br>(Novo-Nordisk)                           | <b>Design, Testing, and Implementation of a the Next ICU Monitoring System</b>                                    |
| 12:35 pm | <b>Eberhard Voit</b><br>(Georgia Tech)                             | <b>Systems Biology and its Role in Predictive Health and Personalized Medicine</b>                                |

1:00 - 2:15 pm

Lunch

2:30 - 3:50 pm

Session VI. Poster Session

3:50-4:00 pm

Coffe Break

4:00 - 5:00 pm

Session VII. Young investigators symposium

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| 4:00 - 4:08 pm | <b>NB Menke</b><br>(Virginia Commonwealth University Medical Center) | <b>A Network Based Approach to the Analysis of Acute Wound Healing</b>       |
| 4:08 - 4:10 pm | <b>QUESTIONS</b>   |  |
| 4:10 - 4:18 pm | <b>Panagiota Foteinou</b><br>(Rutgers University)                    | <b>An indirect response model of endotoxin-induced systemic inflammation</b> |
| 4:18 - 4:20 pm | <b>QUESTIONS</b>   |  |

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| 4:20 - 4:28 pm  | <b>Andriy Batchinsky</b><br>(US Army Institute of Surgical Research) | <b>Clinical and Methodological Impact of Dataset-Length Reduction on Measures of R-to-R Interval Complexity in Prehospital Trauma Patients</b>   |
| 4:28 - 4:30 pm  | <b>QUESTIONS</b>   |  |
| 4:30 - 4:38 pm  | <b>Vitaly Herasevich</b><br>(M.E.T.R.I.C.)                           | <b>ICU of the Future": Informatics Infrastructure for Syndrome Surveillance, Decision Support, Data Mining and Modeling of Critical Illness.</b> |
| 4:38 - 4:40 pm  | <b>QUESTIONS</b>   |  |
| 4:40 - 4:48 pm  | <b>Angela Reynolds</b><br>(University of Pittsburgh)                 | <b>A multi-scale lung model of gas exchange under inflammatory stress</b>  |
| 4:48 - 4:50 pm  | <b>QUESTIONS</b>   |  |
| 4:50 - 4:58 pm  | <b>NB Menke</b><br>(Virginia Commonwealth University Medical Center) | <b>A Simple 2-D Model of Cardiac Tissue Conduction</b>   |
| 4:58 - 5:00 pm  | <b>QUESTIONS</b>   |  |
| 7:00 - 10:00 pm | <b>Gala Dinner</b>   |  |

October 7th, 2007

| Hour            | Name  | Title   |
|-----------------|---|---|
| 7:30 - 8: 20am  | <b>Continental breakfast</b>                          |   |
| 8:30 - 10:10 am | <b>Session VIII.</b>                                  | <b>Multi-scale and Hybrid Modeling: Challenges and Rewards</b>                                |
| 8:30 am         | <b>Anand Asthagiri</b> (Caltech)                      | <b>Predicting Phenotype Diversity and the Underlying Quantitative Molecular Perturbations</b> |
| 8:55 am         | <b>John Younger</b><br>(University of Michigan)       | <b>Bacteremia as a Mechanical, Not Biochemical, Disease</b>                                   |
| 9: 20 am        | <b>Bard Ermentrout</b><br>(University of Pittsburgh)  | <b>A Nonlinear Dynamics Approach to Inflammation</b>  |
| 9:45 am         | <b>Shlomo Ta'asan</b><br>(Carnegie Mellon University) | <b>Immune Response Modeling Using Data Driven Black-Box Approach</b>                          |
| 10:10 am        | <b>Anthony Hunt</b><br>(UCSF)                         | <b>1) The Multi-Scale In Silico Liver or<br/>2) A Hybrid Model of Tissue Transport</b>        |
| 10:35 am        | <b>Panel Discussion</b>                               |   |
| 11:15 am        | <b>ICCAI organizers</b>                               | <b>Concluding remarks</b>   |