

BIOMEDICAL SIMULATIONS RESOURCE
UNIVERSITY OF SOUTHERN CALIFORNIA

Short Course On

**BIOENGINEERING APPROACHES TO
PULMONARY**

PHYSIOLOGY AND MEDICINE

May 20, 1995

The Edgewater
Pier 67
2411 Alaskan Way
Seattle, Washington

Sponsored by

BIOMEDICAL RESEARCH TECHNOLOGY PROGRAM
NATIONAL CENTER FOR RESEARCH RESOURCES
NATIONAL INSTITUTES OF HEALTH

Chairman and Organizer:
Michael C.K. Khoo, Ph.D.
Biomedical Simulations Resource

Short Course Schedule

Saturday, May 20, 1995

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|-------|---|--|
| 7:30 | Registration | |
| 8:00 | Introduction | Michael Khoo
University of Southern California |
| 8:10 | Computational Models of the Respiratory Oscillator in Mammals | Jeffrey Smith
National Institute of Neurological Diseases and Stroke |
| 8:50 | Synaptic Plasticity and Respiratory Control | Chi-Sang Poon
Massachusetts Institute of Technology |
| 9:30 | The North Carolina Respiratory Model: A Multipurpose Model for Studying Control of Breathing | Fredric Eldridge
University of North Carolina at Chapel Hill |
| 10:10 | Break | |
| 10:30 | Application of ARX Modeling to Ventilatory Control: System Characterization, Prediction and Optimal Control | Yoshitaka Oku
Kyoto University |
| 11:10 | Adaptive Modeling of Changes in Ventilatory Control During Sleep | Michael Khoo
University of Southern California |
| 11:50 | Lunch | |
| 1:00 | Nonlinear Dynamical Analysis in the Diagnosis of Respiratory Systems and States: Recurrence Plot Strategies | Charles Webber
Loyola University of Chicago |
| 1:40 | Heterogeneity of Pulmonary Perfusion Characterized by Fractals and Spatial Correlations | Robb Glenny
University of Washington |
| 2:20 | Assessment of Upper Airway Physiology Through Analysis of the Inspiratory Flow Contour | David Rapoport
New York University |

3:00 Coffee Break

**3:20 The Forced Oscillations Technique and its
Application to the Detection and
Understanding of Pulmonary Mechanics**

**Kenneth Lutchen
Boston University**

**4:00 The Temporal Dynamics of Acute
Induced Bronchoconstriction**

**Jason Bates
McGill University**

4:40 Open Discussion and Reception

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