

理研シンポジウム 生体力学シミュレーション研究プログラム

平成 12 年 5 月 24 日, 25 日
理化学研究所和光本所 鈴木梅太郎記念ホール

5 月 24 日 (水)

Introduction

9:30 - 9:50

Opening Address

Outline of the project

A. Makinouchi

Blood Flow Simulation Team

9:50 - 10:05

Outline of the Blood Flow Simulation Team

R. Himeno

10:05 - 11:45

A New Approach to Coupled Fluid-Structure Analysis:

An Example of A Circular Cylinder with Elastic Surface in Uniform Flow

E. Iwase

Hemodynamics in a Multiply Constricted Coronary Artery

B. V. Rathish Kumar

Numerical Simulation of Peristaltic Flows in Human Body

M. Tadjfar

Computational Biomechanics Simulation for the Clinical Cardiovascular Medicine

- Analysis of the interactions between the flow, cells, and tissues -

Takami Yamaguchi

11:45 - 13:00 Lunch

13:00 - 14:40

Global Computational Modeling of Cardiovascular Blood Flow

H. Liu

A Numerical Analysis for a Flow in a Non-Axisymmetric Stenosed Tube

Considering for the Diseased Blood Vessel

N. Watanabe

1D Numerical Analysis for Blood Flow in Multi Branched Arteries

T. Kitawaki

Development of Interactive Modeling System for the Computational Biomechanics

Simulation Using Medical Imaging Data

T. Hayasaka

14:40 - 14:55

Discussion of the Blood Flow Simulation Team

14:55 - 15:10 Coffee Break

Soft and Hard Tissue Simulation Team

15:10 - 15:25

Outline of the Soft and Hard Tissue Simulation Team

A. Makinouchi

15:25 - 16:15

3 Dimensional Digitizing for the Biological Sample Using a 3 Dimensional Internal Structure Microscope

Hideo Yokota, Sakiko Nakamura, Akitake Makinouchi, Toshiro Higuchi

3 Dimensional Image Construction of Pig Eyeball by 3 Dimensional Internal Structure Microscope

Ryuhei Kawaguchi, Hideo Yokota, Yutaka Yamagata, Akitake Makinouchi, Toshiro Higuchi, Hiroo Yabe

16:15 - 16:25 Coffee Break

16:25 - 17:15

The Development of FEM Program for Coupling Analysis of the Hyperelastic Solid And Static Liquid to Simulate the Retina Detachment Operation on an Eyeball

Zhi-Gang Sun, Akitake Makinouchi

Reconstruction and Modeling of Three-dimensional Solids from Medical Images for Biomechanical Simulations

Takashi Kanai, Akitake Makinouchi, Hiromasa Suzuki and Kiwamu Kase:

Development of Head Crash Injury Criterion by Employing Dynamic-Explicit Viscoelastic Finite Element Method

E. Nakamachi, H. Yamaoka

18:00 - 20:00

Reception Party

5月25日(木)

9:30 - 10:45

Simulation Study on Mechanical Adaptation in Cancellous Bone by Trabecular Surface Remodeling

Taiji Adachi, Ken-ichi Tsubota, Yoshihiro Tomita

Experimental Study on Remodeling Rate Equation

- Effects of Mechanical Stimulus on Osteoblastic Activities in Vitro -

Sodai Hoshiai Taiji Adachi, Yoshihiro Tomita

Computational Simulation of Cancellous Bone Remodeling Using Digitalimage-based Model

Ken-ichi Tsubota, Taiji Adachi, Yoshihiro Tomita

10:45 - 11:00

Discussion of the Soft and Hard Tissue Simulation Team

11:00 - 11:15 Coffee Break

Motion Analysis Team

11:15 - 11:30

Outline of the Motion Analysis Team

Ebisuzaki

11:30 – 11:55

Komura, Ebisuzaki

11:55 – 12:10

Discussion of the Motion Analysis Team

12:10 - 13:00 Lunch

Special Lecture

13:00 - 15:30

Trends in cardiovascular fluid dynamics

T. Pedley

Microimaging of coronary hemodynamics and its interpretation

F. Kajiya

Biomechanical Response of Soft Tissues to Mechanical Stress (Arterial Wall and Tendon/Ligament)

K. Hayashi

15:30 – 15:45 Coffee Break

15:45 - 18:15

Biomechanics of Some Soft Tissues: Constitutive Modeling and Computational Aspects

C. Teodosiu

Mechanical and Biological Influences on Bone Formation, Repair and Adaptation

S. Goldstein

Artificial Skin

K. Ohmura

18:15

Closing Remark