Program

Computational Fluid Dynamics (CFD) in Medicine and Biology

in conjunction with the

Seventh International Biofluid Mechanics Symposium

March 25 – 30, 2012
Crowne Plaza Dead Sea, Ein Bokek, Dead Sea, Israel

Conference Chair:

David Elad
Tel Aviv University

Conference Co-Chairs:

Danny Bluestein
Stony Brook University

Denis Doorly
Imperial College London

Morteza Gharib
California Institute of Technology

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Sunday, March 25, 2012

14:00 – 17:00	Arrival and Check-in
17:00 – 18:00	Welcome Reception – Balcony facing the Dead Sea
18:00 – 18:15	Opening Comments **David Elad**, Chairman of the conference **Dov Litvinoff**, Mayor of Tamar Regional Council
18:15 – 18:30	Vocal Performance – "Desert Voices"
18:30 – 19:30	Opening Lecture: **THE DELICATE DISTINCTION BETWEEN MOLECULAR DYNAMICS AND FUNCTIONAL DISORDER: LESSONS FROM THE DEAD SEA BACTERIA RIBOSOMES** Nobel Laureate Prof. Ada Yonath, Weizmann Institute of Science, Israel
20:00 – 21:00	Dinner
21:00 – 23:00	Social Hour

Monday, March 26, 2012

07:00 – 08:00 Breakfast

Session I: New CFD Methods
Chairman: Robert Nerem, USA
Ezra Neufeld, Switzherland

08:00 – 08:18 **CFD SIMULATION IN BIOMEDICAL APPLICATIONS**
Michael Engelman, ANSYS Inc., USA

08:18 – 08:36 **WAVING RINGS AND SWIMMING IN CIRCLES: SOME LESSONS THROUGH COMPUTATIONAL FLUID DYNAMICS**
Lisa Fauci, Tulane University, USA

08:36 – 08:54 **TAKING IMAGE-BASED CFD OUT OF THE LAB AND INTO THE CLINICS: APPROACHES, PITFALLS, OPEN-SOURCE SOFTWARE AND THE CLOUD**
Luca Antiga, Orobix, Srl, Italy

08:54 – 09:12 **LARGE EDDY SIMULATION OF A NOVEL CAVOPULMONARY ASSIST DEVICE FOR FONTAN CIRCULATION**
Steven Frankel, Purdue University, USA

09:12 – 09:30 **APPLICATION OF LATTICE BOLTZMANN MODELS TO INVESTIGATE MULTISCALE TRANSPORT, MIXING AND DRUG DISSOLUTION IN THE INTESTINE**
James Brasseur, Pennsylvania State University, USA

09:30 – 09:48 **BUILDING 'BOTTOM UP' BLOOD FLOW COAGULATION MODELS USING MECHANICAL STATISTICS**
Gilead Moiseyev, Pinchas Bar-Yoseph, Technion, Israel

09:48 – 10:06 **HIGH-RESOLUTION NUMERICAL SIMULATION OF PATIENT-SPECIFIC HEMODYNAMICS WITH IMPLANTED MEDICAL DEVICES**
Fotis Sotiropoulos, University of Minnesota, USA

10:10 – 10:35 Coffee Break

Session 2: Flow & Transport on the Cellular & Molecular Scale
Chairman: Sheldon Weinbaum, USA
Jos Spaan, The Netherlands

10:35 – 10:53 **CELLULAR AND MOLECULAR DYNAMICS: MODELING NATURE'S ORCHESTRA**
Robert Nerem, Georgia Institute of Technology, USA

10:53 – 11:11 **COLLECTIVE CELL GUIDANCE BY COOPERATIVE INTERCELLULAR FORCES**
Jeffrey Fredberg, Harvard School of Public Health, USA

11:11 – 11:29 **ON INTRA-MEMBRANE CAVITATION AND PRESSURE IN THE MOLECULAR LEVEL**
Eitan Kimmel, Technion, Israel

Monday, March 26, 2012 (continued)

11:29 – 11:47	**HOW FORCES REGULATE THE CELL RESPONSE TO THE SURROUNDING ENVIRONMENT?** Daniel Isabey, Inserm-CNRS & University Paris Est Créteil, France
11:47 – 12:05	**MECHANOTRANSDUCTION AND THE GLYCOCALYX** John Tarbell, City College of the City University of New York, USA
12:05 – 12:23	**MECHANICS OF SOLUTE TRANSPORT THROUGH THE ENDOTHELIAL GLYCOCALYX** Herbert Lipowsky, Penn State University, USA
12:23 – 12:38	**ENDOTHELIAL SURFACE GLYCOCALYX AND TUMOR CELL ADHESION IN THE MICROVESSEL** Bingmei Fu, City College of the City University of New York, USA
12:45 – 15:10	Lunch & Free Time
15:10 – 15:30	Coffee Break
15:30 – 16:00	**FDA Session** Chairman: Marvin Slepian, USA **MEDICAL DEVICE REGULATION AND THE ROLE OF MODELING STRATEGIES TO AID PRE-CLINICAL TESTING**
	Session 3: Respiratory Flows Chairman: Kerry Hourigan, Australia Kelly Burrowes, New Zealand
16:00 – 16:18	**HOW WELL DOES MODELING INFORM THE PHYSIOLOGY FROM WHICH IT STEMS?** Robert Schroter, Imperial College London, UK
16:18 – 16:36	**BIOFLUID MECHANICS OF PULMONARY ATELECTRAUMA** Don Gaver, Tulane University, USA
16:36 – 16:54	**UNDERSTANDING RESPIRATORY AIR AND BLOOD FLOW DELIVERY** Merryn Tawhai, University of Auckland, New Zealand
16:54 – 17:12	**PARTICLE DEPOSITION & DRUG DELIVERY THROUGH THE LUNG AIRWAY SYSTEM: PATIENT-SPECIFIC OR STATISTICAL APPROACH?** Marcel Filoche, Ecole Polytechnique, France
17:12 – 17:30	**EXERCISES IN NATURAL ANATOMICAL VARIATIONS: THE NASAL AIRWAYS** Denis Doorly, Imperial College London, UK
17:30 – 17:48	**CFD ON THE NASAL AIRFLOWS: ROLE IN DIAGNOSIS AND SURGERY** Sung-Kyun Kim, Seung-Kyu Chung, Konkuk University & Sungkyunkwan University, South Korea
17:48 – 18:06	**TWO PHASE FLOWS IN PULMONARY AIRWAYS** James Grotberg, University of Michigan, USA

Monday, March 26, 2012 (continued)

19:00 – 20:00	Dinner
20:00 – 22:00	Posters & Social Hour

Tuesday, March 27, 2012

07:00 – 08:00 Breakfast

Session 4: Virtual Prototyping of Medical Devices
Chairman: Mory Gharib, USA
Idit Avrahami, Israel

08:00 – 08:18 **VASCULAR DEVICE DESIGN AND THE ROLE OF CFD**
Tim McGloughlin, University of Limerick, Ireland

08:18 – 08:36 **STENT STRUT CROSS-SECTIONAL GEOMETRY: STREAMLINING REDUCES FLOW SEPARATION**
Juan Jimenez, Peter Davies, University of Pennsylvania, USA

08:36 – 08:54 **FROM VIRTUAL TO RAPID PROTOTYPING AND EXPERIMENTAL VALIDATION: ECMO REDEFINED**
Ulrich Steinseifer, RWTH Aachen University, Germany

08:54 – 09:12 **QUANTITATIVE COMPARISON OF MECHANICAL BLOOD DAMAGE PARAMETERS IN ROTARY VENTRICULAR ASSIST DEVICES**
Katharine Fraser, University of Maryland, USA

09:12 – 09:30 **SHEAR STRESS AND VULNERABLE PLAQUE FORMATION**
Rob Krams, Imperial College London, UK

09:30 – 09:48 **APPLICATION OF THE EULERIAN HEMOLYSIS INDEX METHOD FOR SIMULATING HEMOLYSIS IN PERIPHERAL INTRAVENOUS CATHETER DEVELOPMENT**
Patrick Downie, Austin McKinnon, Ray Isaacson, BD, USA

09:50 – 10:20 Coffee Break

Session 5: Microfluidic Devices
Chairman: Nikos Stergiopulos, Switzerland
Joseph Bull, USA

10:20 – 10:38 **MICROFLUIDIC STUDIES OF CANCER METASTASIS**
Roger Kamm, Massachusetts Institute of Technology, USA

10:38 – 10:56 **MICROFLUIDIC PLATFORM FOR VASCULAR BIOLOGY: ANGIOGENESIS AND ANASTOMOSIS IN MICROFLUIDIC DEVICES**
Noo Li Jeon, Seol National University, Korea

10:56 – 11:14 **MECHANICS BASED MICROFLUIDIC DEVICEFOR THE DETECTION AND RETRIVAL OF RARE CIRCULATING TUMOR CELLS**
Chwee Teck Lim, National University of Singapore, Singapore

11:14 – 11:32 **FLUID MECHANICS AND MASS TRANSPORT IN A MICROGRAVITY-SIMULATING CELL BIOREACTOR**
Mian Long, Chinese Academy of Sciences, China

11:32 – 11:50 **MULTIPLE PARALLEL FLOW-CHAMBER FOR SHEAR-DEPENDENT LEUKOCYTES ADHESION ASSAYS**
Gabriele Dubini, Politecnico di Milano, Italy

Tuesday, March 27, 2012 (continued)

11:50 – 12:08	**MICROFLUIDIC DESIGNS OF PULMONARY ACINAR NETWORKS: CFD AND EXPERIMENT** Josue Sznitman, Technion, Israel
12:10 – 23:00	***Tour to Jerusalem*** *Lunch box on the bus* *Dinner in Jerusalem*

Wednesday, March 28, 2012 – The Elizabeth & Nicholas Slezak Day

07:00 – 08:00 Breakfast

Session 6: Patient Specific & Multi-Scale Modeling
Chairman: Mort Friedman, USA
Andrea Remuzzi, Italy

08:00 – 08:17 **USING CFD FOR PATIENT SPECIFIC SURGICAL PLANNING IN SINGLE VENTRICLE PATIENTS**
Ajit Yoganathan, Georgia Institute of Technology, USA

08:17 – 08:34 **TECHNIQUES FOR CARDIAC VALVE REPAIR: SIMULATION OF PATIENT SPECIFIC POSTOPERATIVE SCENARIOS FOR PERSONALIZED SURGICAL PLANNING**
Alberto Redaelli, Politecnico di Milano, Italy

08:34 – 08:51 **SHEAR STRESS AND ATHEROSCLEROSIS IN HUMAN CORONARY ARTERIES**
Frank Gijsen, Erasmus Medical Center Rotterdam, The Netherlands

08:51 – 09:08 **PATIENT-SPECIFIC AORTIC VALVE DYNAMIC SIMULATIONS AND PATHOLOGY OF THE ASCENDING AORTIC SEGMENTS**
Krishnan Chandran, University of Iowa, USA

09:08 – 09:25 **IMAGE-BASED COMPUTATIONAL FLUID DYNAMICS SIMULATIONS IN PATIENT-SPECIFIC VASCULAR MODELS USING THE MIMICS INNOVATION SUITE**
Patricia Lopes, Erik Boelen, Materialise Group, Belgium

09:25 – 09:42 **A MULTI-SCALE PATIENT SPECIFIC COMPUTATIONAL STUDY TO PREDICT HEMODYNAMICS OF STAGE 2 PALLIATION FOR SINGLEVENTRICLE HEARTS**
Francesco Migliavacca, Politecnico di Milano, Italy

09:42 – 09:59 **IMAGE-BASED VS. PATIENT-SPECIFIC MODELS: WHAT IS THE DIFFERENCE AND DOES IT MATTER?**
David Steinman, University of Toronto, Canada

10:00 – 10:25 Coffee Break

Session 7: Cardiovascular Engineering 1
Chairman: Forbes Dewey, USA

10:25 – 10:42 **DESIGN OPTIMIZATION IN BIOFLUID MECHANICS**
Ross Ethier, Imperial College London, UK

10:42 – 10:59 **INTERFACING BASIC COMPUTATIONAL RESEARCH AND CLINICAL PRACTICE: A VASCULAR ACCESS CASE STUDY**
Pascal Verdonck, Ghent University, Belgium

10:59 – 11:16 **THREE-DIMENSIONAL NUMERICAL SIMULATION OF BLOOD FLOW IN APOE- /- MICE AORTIC ARCH AROUND ATHEROSCLEROSIS PLAQUES**
Kerry Hourigan, Monash University, Australia

Wednesday, March 28, 2012 – The Elizabeth & Nicholas Slezak Day (continued)

11:16 – 11:33	**CORONARY PERFUSION IN HEALTH AND DISEASE: TRANSLATION FROM PHYSIOLOGICAL MODELS TO CLINICAL PRACTICE** Maria Siebes, University of Amsterdam, The Netherlands
11:33 – 11:50	**EMERGING ROLE OF MECHANICAL CIRCULATORY SUPPORT IN THE MANAGEMENT OF ADVANCED HEART FAILURE: SUCCESS, LIMITATIONS AND OPPORTUNITIES** Marvin Slepian, University of Arizona, USA
11:50 – 12:07	**WALL SHEAR STRESS AND ATHEROSCLEROSIS; A HETERODOX VIEW** Peter Weinberg, Imperial College London, UK
12:07 – 12:24	**WALL SHEAR STRESS AND ATHEROSCLEROSIS: AGE RELATED VARIATIONS IN A STUDY OF RABBIT AORTAS** Spencer Sherwin, Imperial College London, UK
12:24 – 12:41	**AORTIC WAVE DYNAMICS AND ITS INFLUENCE ON LEFT VENTRICULAR WORKLOAD** Mory Gharib, California Institute of Technology, USA
12:45 – 15:20	Lunch & Free Time
15:20 – 15:40	Coffee Break
	Session 8: Cardiovascular Engineering 2 Chairman: Yacov Shamash, USA
15:40 – 15:57	**ISRAELI TECH-INNOVATIONS IN CARDIOVASCULAR MEDICINE – THE "START UP' NATION** Ran Koronowski, Rabin Medical Center, Israel
15:57 – 16:14	**FLUID DYNAMICS IN CARDIOVASCULAR SURGERY: EXPERIMENTAL MODELING, COMPUTATIONAL SIMULATION AND CLINICAL RELEVANCE** Ikuo Fukuda, Hirosaki University School of Medicine, Japan
16:14 – 16:31	**THE ROLE OF LOW SHEAR STRESS RATES FOR PLATELET DEPOSITION** Klaus Affeld, Medical University Berlin, Germany
16:31 – 16:48	**BIOMECHANICS AND PLAQUE PROGRESSION IN HUMAN CORONARY ARTERIES** Don Giddens, Georgia Institute of Technology, USA
16:48 – 17:05	**OPTIMIZING THE THROMBORESISTANCE OF MECHANICAL CIRCULATORY SUPPORT DEVICES - DEMONSTRATION IN A VENTRICULAR ASSIST DEVICE** Danny Bluestein, Stony Brook University, USA
17:05 – 17:22	**FREQUENCY AND DISTRIBUTION OF MICROCALCIFICATIONS IN VULNERABLE PLAQUE AND THEIR ROLE IN FIBROUS CAP RUPTURE** Sheldon Weinbaum, City College of the City University of New York, USA

Wednesday, March 28, 2012 – The Elizabeth & Nicholas Slezak Day (continued)

17:22 – 17:39	**MICROCIRCULATORY TRANSPORT INFORMS THE STUDY OF ARTERIAL DISEASE** Forbes Dewey, Massachusetts Institute of Technology, USA
17:39 – 18:00	**CONCLUDING REMARKS** Shmuel Einav, Tel Aviv University, Israel
19:00 – 22:00	**Banquet Dinner + Celebration of Shmuel's 70th birthday** **Keynote Lecture**: **THE ISRAELI SPACE INDUSTRY** Prof. Daniel Hershkovitz, Minister of Science and Technology, Israel

Thursday, March 29, 2012

07:00 – 08:00 Breakfast

Session 9: Physiological Flow Modeling 1
Chairman: Patrick Segers, Belgium
Alexander Yakhot, Israel

08:00 – 08:18 **A MULTISCALE MODEL OF HYPERACTIVATED SPERM**
Sarah Olson, Lisa Fauci, Worcester Polytechnic University, USA

08:18 – 08:36 **LEFT-RIGHT PATTERNING IN DEVELOPING EMBRYOS: A CASE OF THEORETICAL PREDICTION FROM FLUID DYNAMICS IN BIOLOGY**
Oreste Piro, University of Balearic Islands, Spain

08:36 – 08:54 **EMBRYONIC GROWTH APPLICATIONS OF CARDIOVASCULAR FLUID MECHANICS**
Kerem Pekkan, Carnegie Mellon, USA

08:54 – 09:12 **FSI SIMULATION OF THE VELOCITY PROFILE IN THE HUMAN FETAL DUCTUS VENOSUS**
Leif Rune Hellevik, Norwegian Institute of Science & Technology, Norway

09:12 – 09:30 **AN INITIAL CORRELATION STUDY OF PULSATILE VENTRICULAR ASSIST DEVICE THROMBUS DEPOSITION BETWEEN EXPERIMENTAL FLUID DYNAMICS AND AN IN VIVO IMPLANT**
Keefe Manning, Pennsylvania State University, USA

09:30 – 09:48 **QUANTITATIVE COMPARISON OF 4D MRI FLOW MEASUREMENTS TO 3D CFD OF CEREBROSPINAL FLUID MOVEMENT IN THE SPINAL SUBARACHNOID SPACE**
Bryn Martin, Nikos Stergiopulos, Swiss Federal Institute of Technology (EPFL), Switzerland

09:50 – 10:20 Coffee Break

Session 10: Physiological Flow Modeling 2
Chairman: Ronald Magness, USA
Yoram Lanir, Israel

10:20 – 10:38 **INTERSTITIAL FLOW IN THE HIERARCHICAL PORE SPACE ARCHITECTURE OF BONE TISSUE**
Steve Cowin, City College of the City University of New York, USA

10:38 – 10:56 **SLOW FRICTIONAL FLOW AND ION TRANSPORT WITH EMPHASIS ON CARTILAGE CELLULAR ELECTOMECHANICAL-SIGNAL TRANSDUCTION**
Van Mow, Columbia University, USA

10:56 – 11:14 **EXPERIMENTAL CHARACTERIZATION OF LYMPHATIC VESSEL MECHANICS AND PUMPING**
James Moore, Texas A&M University, USA

11:14 – 11:32 **LUMPED-PARAMETER MODELING OF MICROLYMPHATIC VESSELS**
Chris Bertram, University of Sydney, Australia

Thursday, March 29, 2012 (continued)

11:32 – 11:50	**COMPUTATIONAL FLUID DYNAMIC MODEL OF FISH FEEDING** Roi Holzman, Tel Aviv University, Israel
11:50 – 12:08	**GENERATION AND CONTROL OF FLOW RATE BY A MULTI-PINCHER IMPEDANCE PUMP** Moshe Rosenfeld, Tel Aviv University, Israel
12:10 – 18:00	**Tour to Masada** Lunch box on the bus
19:00 – 20:00	Dinner
20:00 – 22:00	Posters & Social Hour

Friday, March 30, 2012

07:00 – 09:00	Breakfast
09:00	Departures

COMPUTATIONAL FLUID DYNAMICS (CFD) IN MEDICINE AND BIOLOGY
in conjunction with the
SEVENTH INTERNATIONAL BIOFLUID MECHANICS SYMPOSIUM

Monday (March 26) Poster Presentations

1. **A FLUID STRUCTURE INTERACTION MODEL OF PHYSIOLOGIC PORCINE AORTIC VALVE UNDER FULL CARDIAC CYCLE**
   Gil Marom, Tel-Aviv University, Israel

2. **CORRELATION BETWEEN PLAQUE COMPOSITION AND SHEAR STRESS USING THREE-DIMENSIONAL RECONSTRUCTED HISTOLOGY AND COMPUTATIONAL FLUID DYNAMICS OF DISEASED HUMAN CAROTID ARTERIES**
   Jolanda Wentzel, ErasmusMC, The Netherlands

3. **SHEAR STRESS DISTRIBUTION IN 3D RECONSTRUCTED CORONARY BIFURCATIONS BY FUSION OF IVUS AND MSCT**
   Frank JH Gijsen, ErasmusMC, The Netherlands

4. **A PATIENT-SPECIFIC MULTISCALE STUDY OF THE NORWOOD PROCEDURE INCLUDING AORTIC COARCTATION: EXPERIMENTAL VERSUS COMPUTATIONAL MODELING**
   Francesco Migliavacca, Politecnico di Milano, Italy

5. **STATISTICAL WSS MAPS IN RUPTURED AND UNRUPTURED CEREBRAL ANEURYSMS**
   Leonid Goubergrits, Biofluid Mechanics Laboratory, Charité, Germany

6. **NUMERICAL SIMULATION OF BLOOD FLOW IN FEMORAL PERFUSION WITH CANNULA OR GRAFT**
   Takeshi Goto, Hirosaki University, Japan

7. **FULLY COUPLED 3D FLUID-STRUCTURE-INTERACTION SIMULATIONS OF A TOTAL ARTIFICIAL HEART**
   Simon Sonntag, RWTH Aachen University, Germany

8. **CFD EVALUATION OF THE THROMBOGENIC POTENTIAL OF BLOOD RECIRCULATING DEVICES IN EXTRACORPOREAL CIRCULATION.**
   Alessandra Pelosi, Politecnico di Milano, Italy

9. **NOVEL AORTIC CANNULA FOR CARDIOPULMONARY BYPASS TO REDUCE CEREBRAL EMBOLI – A NUMERICAL STUDY**
   Idit Avrahami, Ariel University, Israel

10. **MECHANICAL ASPECTS OF FENESTRATED ENDOGRAFTS FOR TREATMENT OF ABDOMINAL AORTIC ANEURYSM**
    Idit Avrahami, Ariel University center of Samaria, Israel, Israel

11. **COMPUTATIONAL FLUID DYNAMICS IN BIFURCATED STENTED CORONARY ARTERIES**
    Gabriele Dubini, Politecnico Di Milano, Italy

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Monday (March 26) Poster Presentations

12. **THE INFLUENCE OF SIMPLIFIED BOUNDARY CONDITIONS ON THE OUTCOME OF CFD SIMULATIONS IN THE MOUSE AORTA**
    Patrick Segers, Ghent University, Belgium

13. **MITRAL VALVE ANTERIOR LEAFLET IN VIVO SHAPE MAY CONTRIBUTE TO OPTIMIZING VENTRICULAR EJECTION**
    Marco Stevanella, Politecnico di Milano, Italy

14. **REDUCING THE DATA: ANALYSIS OF THE ROLE OF VASCULAR GEOMETRY ON BLOOD FLOW PATTERNS IN CURVED VESSELS**
    Spencer Sherwin, Imperial College London, United Kingdom

15. **TOWARD OPTIMIZING HEMODYNAMIC EFFICIENCY OF THE FONTAN Y-GRAFT WITHIN ANATOMIC CONSTRAINTS**
    Christopher Haggerty, Georgia Institute of Technology, USA

16. **FLOW DEVELOPMENT PAST BICUSPID AORTIC VALVES AND THE RELATIONSHIP TO ASCENDING AORTIC PATHOLOGY**
    Sarah C. Vigmostad, The University of Iowa, USA

17. **EFFECT OF ARTERIAL WALL HYPERTROPHY AND STIFFNESS ON THE BLOOD FLOW IN FLEXIBLE CAROTID ARTERY BIFURCATION**
    Jung Yul Yoo, Seoul National University, Korea

18. **EXPERIMENTAL AND COMPUTATIONAL STUDIES OF A FORMED THROMBUS WITHIN A BACKWARDS FACING STEP GEOMETRY**
    Joshua O. Taylor, The Pennsylvania State University, USA

19. **CELL FREE LAYER AND SHEAR STRESS VARIATION IN MICROVESSELS**
    Junfeng Zhang, Laurentian University, Canada

20. **UNDERSTANDING WAVE PROPAGATION PHENOMENA IN THE ARTERIAL TREE**
    Nikos Stergiopulos, EPFL, Switzerland

21. **MIDDLE MEATAL ANTROSTOMY AND NASAL AIRFLOW: A COMPUTATIONAL FLUID DYNAMIC STUDY**
    Seung-Kyu Chung, Sungkyunkwan University School of Medicine, Korea

22. **EFFECT OF ARTERIAL DISTENSIBILITY AND STENOSES ON PRESSURE DROP IN PULSATILE FLOW**
    Oren Rotman, Tel Aviv University, Israel

COMPUTATIONAL FLUID DYNAMICS (CFD) IN MEDICINE AND BIOLOGY
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Thursday (March 29) Poster Presentations

1. **PERMEABILITY OF THE PLASMA MEMBRANE INCREASES WITH THE STRAIN LEVEL IN STATICALLY-STRETCHED MYOBLASTS**
   Amit Gefen, Tel Aviv University, Israel

2. **BENCHMARKING OF FLUID/STRUCTURE-INTERACTION MODELS OF WAVE PROPAGATION**
   C.D. Bertram, University of Sydney, Australia

3. **MEASUREMENT AND MR IMAGING BASED SIMULATION OF THE MAGNETO-HEMODYNAMIC EFFECT**
   Esra Neufeld, Foundation for Research on Information Technologies in Society (IT'IS), Switzerland

4. **PATIENT SPECIFIC MULTI-SCALE HEMODYNAMIC COMPUTATIONAL MODEL FOR PLANNING VASCULAR ACCESS SURGERY IN HEMODIALYSIS PATIENTS**
   Andrea Remuzzi, University of Bergamo, Italy

5. **OSCILLATORY COUETTE FLOW OF A SISKO FLUID IN A ROTATING SYSTEM**
   Shirley Abelman, University of the Witwatersrand, South Africa

6. **ANALYSIS OF NEOROLOGIC COMPLICATIONS DURING CARDIOPULMONARY BYPASS**
   Tim A.S. Kaufmann, RWTH Aachen University, Germany

7. **WAKE FLOW OF ECCENTRIC STENOTIC GEOMETRIES**
   Kerry Hourigan, Monash University, Australia

8. **THE OPTICAL VIRTUAL ENDOSCOPY FOR VISUALIZATION OF THE URINE FLOW IN THE PROSTATIC URETHRA**
   Takuro Ishii, Chiba University, Japan

9. **OPTIMAL SWIMMING GAIT OF UNDULATORY SWIMMERS AT LOW REYNOLDS NUMBER: THE NEMATODE C. ELEGANS**
   Josue Sznitman, Technion - Israel Institute of Technology, Israel

10. **EFFECTS OF ANASTOMOTIC ANGLE AND FLOW DIVISION ON DISTURBED FLOW IN RADIAL-CEPHALIC FISTULAE FOR HAEMODIALYSIS**
    Bogdan Ene-Iordache, Mario Negri Institute, Italy

11. **ROLE OF SHEAR STRESS FOR SURFACTANT PRODUCTION IN A MICROFLUIDIC MODEL OF FETAL AIRWAYS**
    Janna Tenenbaum-Katan, Technion - Israel Institute of Technology, Israel

12. **A MICROFLUIDIC NETWORK FOR DRUG SCREENING WITH STRONTIUM RANELATE ON CULTURED SAOS-2 CELLS FOR OSTEOPOROSIS THERAPY: DESIGN AND FABRICATION**
    Gabriele Dubini, Politecnico di Milano, Italy

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Thursday (March 29) Poster Presentations

13. **ROLE OF CONFINED JETS ON BLOOD CLOTTING WITHIN INTRACRANIAL CEREBRAL ANEURYSMS**
    S. Cito, Universitat Pompeu Fabra, Spain

14. **ACOUSTIC DROPLET VAPORIZATION FOR GAS EMBOLOTHERAPY**
    Joseph L. Bull, University of Michigan, USA

15. **REVISITING TURBULENCE IN CEREBRAL ANEURYSMS: A RISK FACTOR FOR RUPTURE?**
    Kristian Valen-Sendstad, University of Toronto, Canada

16. **CEREBRAL ARTERY HEMODYNAMICS IN PEDIATRIC SICKLE CELL DISEASE: A PRELIMINARY STUDY**
    Amanda K. Wake-Buck, Vanderbilt University, USA

17. **VALIDATION OF CORONARY PERFUSION PREDICTED FROM CUMULATIVE ARTERIAL LUMEN VOLUME**
    P. van Horssen, Academic Medical Center, The Netherlands

18. **NUMERICAL SIMULATION OF ULTRASOUND-INDUCED BIOMARKER CAPTURING INTO LIPOSOMES**
    Luai R. Khoury, Ben-Gurion University of the Negev, Israel

19. **MIMICKING PULMONARY ACINAR FLOWS AT THE MICROSCALE USING MICROFLUIDICS**
    Ramy Fischler, Technion - Israel Institute of Technology, Israel

20. **ACUTE CHANGES IN CORONARY WAVE INTENSITY IN PATIENTS UNDERGOING TRANSCUTANEOUS AORTIC VALVE IMPLANTATION**
    Cristina Rolandi, University of Amsterdam, The Netherlands

21. **DETERMINANTS OF TRANSMURAL CORONARY FLOW: MECHANISMS OF SUBENDOCARDIAL VULNERABILITY**
    Yoram Lanir, Technion ITT, Israel

22. **CHANGES IN UTERINE ARTERY SHEAR STRESS AND BLOOD PRESSURE IN NORMAL PREGNANT VS. PREECLAMPTIC WOMEN: EFFECTS OF HIGH ALTITUDE AND ANCESTRY**
    Ronald R. Magness, University of Wisconsin-Madison, USA

23. **VALVELESS PUMPING IN A THICK WALL ELASTIC TUBE**
    Pavel Kozlovsky, Tel Aviv University, Israel

24. **ON APPLICATION OF PROPER ORTHOGONAL DECOMPOSITION FOR ANALYZING BLOOD FLOWS IN ARTERIES**
    Alexander Yakhot, Ben-Gurion University, Israel