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Thursday, February 22, 2018

08:00-09:00 Gathering and Registration

Foyer

09:00-10:30 Plenary 1

Oren Hall - Main Hall

09:00-09:20

Greetings and Open Remarks

09:20-09:30

Greetings

09:30-10:00

Keynote Lecture: The Evolution of Cardiac Assist Device Technology

Jay Lavee^(1, 2)

⁽¹⁾Director, Heart Transplantation Unit, Deputy Director, Department of Cardiac Surgery, Sheba Medical Center, Israel

⁽²⁾Sackler Faculty of Medicine, Tel Aviv University, Israel

10:00-10:15

Greetings

10:15-10:30

Honorary Fellowship Awards Ceremony

Ph.D. Students Awards Ceremony

10:30-10:45 Coffee Break & Exhibition visit

Foyer

10:45-11:45 Session 1: Industry I New Material Based Technologies

Oren Hall - Main Hall

Chairperson: Zohar Gendler, Amir Toren

10:45-11:00

Recombinant Human Collagen Based BioInk for 3D Bioprinting of Tissues and Organs

Nadav Orr

11:00-11:15

What is Parylene Coatings?

Tal Kaufman

Simtal Coatings Ltd., Israel

11:15-11:30

Translating Personalized Cancer Medicine Diagnostics to the Clinic

Ronen Eavri, Annie Sabbah, Felix Badinter, Rafi Tshuva, Zvi Yaari, Avi Schroeder

Barcode Diagnostics, Israel

11:30-11:45

PlasFree - Revolutionizing Massive Bleeding Treatment

Zeev Dvashi, Abed Elrauf Hijazi

Plas-free Ltd., Israel

10:45-11:45 Session 2: Medical Imaging

Alon Hall

Chairpersons: Haim Azhari, Noam Ben-Eliezer

10:45-11:00

Three-Dimensional Optical Nanoscopy

Yoav Shechtman

Dept. of Biomedical-Engineering, Technion-Israel Institute of Technology, Israel

11:00-11:15

Deep Learning for Biomedical Imaging: Can We Get Faster or Better?

Tammy R. Raviv

11:15-11:30

Quantitative MRI: Increasing the Sensitivity and Stability of Magnetic Resonance Imaging

Noam Ben Eliezer^(1, 2, 3)

⁽¹⁾*Department of Biomedical Engineering, Tel Aviv University, Israel*

⁽²⁾*Sagol School of Neuroscience, Tel Aviv University, Israel*

⁽³⁾*Center for Advanced Imaging Innovation and Research, (CAI2R), New York University School of Medicine, USA*

11:30-11:35

Fast Image-Guided Stratification Using Anti-PDL1 Gold Nanoparticles for Cancer Immunotherapy

Rinat Meir, Katerina Shamalov, Tamar Sadan, Menachem Motiei, Gur Yaari, Cyrille J. Cohen, Rachela Popovtzer

11:35-11:40

Pilot Measurements of Coronary Flow Reserve (CFR) and Comparison to Myocardial Perfusion Imaging (MPI) using Dynamic and Gated Stress/Rest ^{99m}Tc-SESTAMIBI CZT-SPECT

Alexander Krakovich⁽¹⁾, Israel Moalem⁽³⁾, Alexei Naimushin⁽³⁾, Eli Rozen⁽³⁾, Mickey Scheinowitz⁽¹⁾, Ronen Goldkorn^(2, 3)

⁽¹⁾*Department of Biomedical Engineering, Tel Aviv University, Israel*

⁽²⁾*Sakler School of Medicine, Tel Aviv University, Israel*

⁽³⁾*The Leviev Heart Center, Sheba Medical Center, Israel*

10:45-11:45 Session 3: Nanomedicine

Tamar Hall

Chairpersons: Rachela Popovtzer, Avi Schroeder

10:45-11:00

Engineering Biology: From a Concept Idea to Developing a New Drug

Dan Peer

11:00-11:15

Quantitative Prediction of Nanoparticle Assembly for Personalized Nanomedicine

Yosi Shamay

11:15-11:30

Diagnostic Barcoded Nanoparticles for Personalized Cancer Medicine

Zvi Yaari, Avi Schroeder, Avi Schroeder

Department of Chemical Engineering,, Technion-Israel Institute of Technology, Israel

11:30-11:35

Mucoadhesive Acrylated Chitosan Nanoparticles for Drug Delivery

Shaked Eliyahu⁽¹⁾, Anat Aharon⁽²⁾, Havazelet Bianco-Peled^(1, 3)

⁽¹⁾*The Russell Berrie Nanotechnology Institute, Technion-Israel Institute of Technology, Israel*

⁽²⁾*Bruce Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, Israel*

⁽³⁾*Department of Chemical Engineering, Technion-Israel Institute of Technology, Israel*

11:35-11:40

Casein Based Nano-Vehicles for Oral Delivery of Chemotherapeutic Combinations to Overcome Multidrug Resistance in Gastric Cancer

Maya Bar-Zeev^(1, 2, 3), Yehuda G. Assaraf⁽³⁾, Yoav D. Livney^(1, 2)

⁽¹⁾*Russell Berrie Nanotechnology Institute, Technion - Israel Institute of Technology, Israel*

⁽²⁾*Department of Biotechnology and Food Engineering, Technion - Israel Institute of Technology, Israel*

⁽³⁾*Department of Biology, Technion - Israel Institute of Technology, Israel*

11:40-11:45

Rapid Phenotypic Antimicrobial Susceptibility Testing using Nanoliter Droplet Arrays

Jonathan Avesar⁽¹⁾, Dekel Rosenfeld⁽¹⁾, Marianna Truman-Rosentsvit⁽²⁾, Tom Ben-Arye^(1, 3), Yuval Geffen⁽⁴⁾, Moran Bercovici⁽²⁾, Shulamit Levenberg^(1, 3)

⁽¹⁾*Biomedical Engineering, Technion Institute of Technology, Israel*

⁽²⁾*Mechanical Engineering, Technion Israel Institute of Technology, Israel*

⁽³⁾*Russel Berrie Nanotechnology Institute, Technion Israel Institute of Technology, Israel*

⁽⁴⁾*Rambam Health Care Campus, Technion Israel Institute of Technology, Israel*

10:45-11:45 Session 4: Mobile Health

Rimon Hall

Chairperson: Benny Gavish

10:45-11:00

Creating Medical Devices for IoMT - The Internet of Medical Things

Guy Vinograd

Softimize, The IoMT Platform Company, Israel

11:00-11:15

Multimodal Remote Monitoring for Multimorbid Elderly Patients

Or Tal

ATLASense Biomed Ltd, Israel

11:15-11:30

Thermal Imaging as a Tool for Radiotherapy Treatment Monitoring

Oshrit Hoffer^(1, 2), Merav A. Ben-David^(3, 4), Eyal Katz⁽²⁾, Dana Kirshenabum⁽²⁾, Dror Alezra⁽⁴⁾, Itzhak Kelson⁽⁵⁾, Israel Gannot^(1, 6)

⁽¹⁾*Department of Biomedical Engineering, Faculty of Engineering, Tel Aviv University, Israel*

⁽²⁾*School of Electrical Engineering, Afeka College of Engineering, Israel*

⁽³⁾*Sackler School of Medicine, Tel-Aviv University, Israel*

⁽⁴⁾*Radiation Oncology Department, Sheba Medical Center, Israel*

⁽⁵⁾*School of Physics and Astronomy, Raymond and Beverly Sackler Faculty of Exact Sciences, Tel Aviv University, Israel*

⁽⁶⁾*Department of Electrical and Computer Engineering, Whiting School of Engineering, John Hopkins University, USA*

11:30-11:45

Using a Universal Vital-Signs Thermometer for Remote Monitoring utilizing a Cloud-Based Rules Engine

Yossi Aldar⁽¹⁾, Israel Amirav^(2, 3), **Ian Solomon**⁽¹⁾

⁽¹⁾*RespiDx Ltd., Israel*

⁽²⁾*University of Alberta, Canada*

⁽³⁾*Sourasky Medical Center, Israel*

10:45-11:45 Session 5: Mechanobiology

Hadas Hall

ChairpersonS: Daphne Weihs, Orit Shefi

10:45-11:00

Cells Fighting for Their Lives: The Effects of Sustained Deformations Versus Trauma on Cell Viability and Behavior

Amit Gefen

Biomedical Engineering, Tel Aviv University, Israel

11:00-11:15

Nanoengineered Platforms for Neuronal Regeneration

Orit Shefi^(1, 2), Michal Marcus^(1, 3), Merav Antman-Passig^(1, 3), Ale Smith^(1, 3), Hadas Schori^(1, 3), Amos Sharoni^(2, 3)

⁽¹⁾*Faculty of Engineering, Bar-Ilan University, Israel*

⁽²⁾*Department of Physics, Bar-Ilan University, Israel*

⁽³⁾*Institute of Nanotechnology and Advanced Materials, Bar-Ilan University, Israel*

11:15-11:30

Mechano-responsive Nano-medicine for Targeted Drug Delivery

Netanel Korin

Biomedical Engineering, Technion, Israel

11:30-11:35

Mechanobiology Based Prediction of Metastatic Invasiveness of Pancreatic Tumors

Yulia Merkher⁽¹⁾, Ofir Ben-Ishay⁽²⁾, Yoram Kluger⁽²⁾, Daphne Weihs⁽¹⁾

⁽¹⁾*Faculty of Biomedical Engineering, Technion Israel Institute of Technology, Israel*

⁽²⁾*General Surgery, Rambam Health Care Campus, Israel*

11:35-11:40

Forces and Regulation of Vascular Network

Shira Landau, Shulamit Levenberg

Biomedical Engineering, Technion, Israel

11:45-12:00 Coffee Break

Foyer

12:00-13:00 Session 6: Industry II Implantable and Wearable Medical Devices

Oren Hall - Main Hall

Chairperson: Idit Avrahami

12:00-12:15

Contained Tissue Extraction System For Laparoscopic Procedures

Stav Tory

Ark Surgical Ltd., Israel

12:15-12:30

A Fully Implantable Device for Continuous Removal of Systemic Fluid Overload

Nitai Hanani

Paragate Medical Ltd., Israel

12:30-12:45

Wearable Drug Delivery – an Emerging Market Trend

Andrei Yosef, Mindy Katz

Sorrel Medical, Israel

12:45-13:00

Multiple Biliary Plastic Stents Placements

Omri Naveh

EndoGI Medical Ltd, Israel

12:00-13:00 Session 7: Medical Optics

Alon Hall

Chairpersons: Natan T. Shaked, Yuval Ebenstein

12:00-12:15

Nanofluidic Devices for Genetic and Epigenetic Diagnostics

Yuval Ebenstein

Chemistry, Tel Aviv University, Israel

12:15-12:30

Plasmonic Targeting of Cells in a Three-dimensional Natural Hydrogel

Limor Minai, Matan Hamra, Dvir Yelin

Biomedical Optics lab, Faculty of Biomedical Engineering, Tehcnion, Israel Institute of Technology, Israel

12:30-12:45

Remote Photonic Sensing of Hemodynamics of Brain Activity

Nissan Ozana⁽¹⁾, Adam Noah⁽²⁾, Xian Zhang⁽²⁾, Yumie Ono⁽³⁾, Joy Hirsh^(2, 4, 5), Zeev Zalevsky⁽¹⁾

⁽¹⁾Faculty of Engineering and the Nano Technology Center, Bar-Ilan University, Israel

⁽²⁾Department of Psychiatry, Yale School of Medicine, USA

⁽³⁾Health Science and Medical Engineering Laboratory, Dept. of Physiology and Neuroscience, School of Science and Technology, Meiji University, Tama-ku, Kawasaki-shi, Japan

⁽⁴⁾Department of Neuroscience, Yale School of Medicine, USA

⁽⁵⁾Department of Comparative Medicine, Yale School of Medicine, USA

12:50-12:55

Calibration-Free Pulse Oximetry Based on Two Wavelengths in the Infrared

Ohad Yossef Hay^(1, 3), Meir Cohen⁽¹⁾, Itamar Nitzan⁽²⁾, Ruben Bromiker⁽²⁾, Yair Kasirer⁽²⁾, Yitzhak Yitzhaky⁽³⁾, Meir Nitzan⁽¹⁾, Shlomo Engelberg⁽¹⁾

⁽¹⁾*Department of Physics/Electro-Optics Engineering, Jerusalem College of Technology, Israel*

⁽²⁾*Neonatal Intensive Care Unit, Shaare Zedek Medical Center, Israel*

⁽³⁾*Department of Electro-Optics Engineering, Ben-Gurion University of the Negev, Israel*

12:00-13:00 Session 8: Novel Biomaterials

Tamar Hall

Chairpersons: Meital Zilberman, Hanna Rapaport

12:00-12:15

Mucoadhesive Drug Carriers

Havazelet Bianco-Peled

Department of Chemical Engineering, Technion Israel Institute of Technology, Israel

12:15-12:30

Functional Peptide Coatings for Advanced Titanium Implants

Hanna Rapaport

Avram and Stella Goldstein-Goren Biotechnology Engineering Department and the Ilse Katz Institute for Nanoscale Science & Technology, Ben-Gurion Univ, Israel

12:30-12:45

Advanced Biomaterials for Regenerating Diseased Organs

Tal Dvir

Sagol Center for Regenerative Biotechnology, Laboratory for Tissue Engineering and Regenerative Medicine, School of Molecular Cell Biology & Biotechnology, Department of Materials Science and Engineering, The Center for Nanoscience and Nanotechnology, Tel Aviv University, Israel

12:45-12:50

2.5D Printing of Drug-Delivery Microspheres from Melt

Tal Shpigel, Almog Uziel, Dan Lewitus

Polymers and Plastics Engineering, Shenkar - Engineering. Design. Art., Israel

12:50-12:55

Post Marketing Trial Results of Total Hip Replacement Using MP-1™

Alisa Buchman⁽¹⁾, Simha Sibony⁽¹⁾, James P. Burn⁽²⁾

⁽¹⁾*MMATECH Ltd, Israel*

⁽²⁾*Orthopedics, FRACS, New Zealand*

12:00-13:00 Session 9: Cardiovascular I

Rimon Hall

Chairpersons: Amir Landesberg, Netanel Korin

12:00-12:15

Transgene independent generation of functional SinoAtrial Node-Like Pacemaker Cells from hPSCs

Udi Nussinovitch

Department of Cardiology, Meir Medical Center, Israel

12:15-12:30

Heart-on-Chip Devices for Scientific Discoveries and Pharmacological Screening

Moran Yadid, Kevin Kit Parker

Disease Biophysics Group, Harvard SEAS, USA

12:30-12:45

CorAssist Cardiovascular CORolla[®] Device for Treatment of Heart Failure with Preserved Ejection Fraction (HFpEF)

Yotam Reisner, Yair Feld

Corassist, Cardiovascular Ltd., Israel

12:45-13:00

The Vicious Cycle of Dyspnea in Patients with Heart Failure

Anna Faingersh-Klebanov⁽¹⁾, Shmuel Rispler⁽²⁾, Eugenia Nikolsky⁽²⁾, Yuval Cohen⁽²⁾, Arthur Kerner⁽²⁾, Sergey Yalonetsky⁽²⁾, Amnon Eitan⁽²⁾, Ariel Roguin⁽²⁾, Amir Landesberg⁽¹⁾

⁽¹⁾Faculty of Biomedical Engineering, Technion-Israel Institute of Technology, Israel

⁽²⁾Cardiology, Rambam Health Care Campus, Israel

12:00-13:00 Session 10: Systems and Synthetic Biology

Hadas Hall

Chairpersons: Tamir Tuller, Johann Elbaz

12:00-12:15

Learning Therapeutic Automata

Ido Bachelet

12:15-12:30

Leveraging the 3D Genome to Solve Genome Assembly

Noam Kaplan

Department of Physiology, Biophysics & Systems Biology, Rappaport Faculty of Medicine, Technion Israel Institute of Technology, Israel

12:30-12:45

Comprehensive Combination Therapies to Block Acquired Resistance to Targeted Drugs

Izhak Haviv, A. Liberman, S. Carmi, G. Pri Paz, H. Reuveni, N. Shraga, D. Peri, L. Kuperschmidt, N. Moskovitz, E. Golomb, A. Livof, S. M. Stemmer

Faculty of Medicine, Bar Ilan University, Israel

12:45-12:50

Synthetic Data Converters in Living Cells

Luna Rizik, Ramez Daniel

Biomedical Engineering, Technion-Israel Institute of Technology, Israel

12:50-12:55

Ensuring Host Fitness via Ramp Engineering

Hadas Zur⁽¹⁾, Rachel Cohen-Kupiec⁽¹⁾, Tamir Tuller^(1, 2)

⁽¹⁾*Department of Biomedical Engineering, Tel Aviv University, Israel*

⁽²⁾*The Sagol School of Neuroscience, Tel Aviv University, Israel*

13:00-13:45 Lunch Break & Exhibition visit

Foyer

13:45-14:30 Poster Session

Foyer

-1

Investigation of Ultrasound Properties of the Brain Under Different Thermal Conditions

Dahis Daniel, Haim Azhari

Biomedical Engineering, Technion Institute of Technology, Israel

-2

Post Marketing Trial Results of Total Hip Replacement Using MP-1™

Alisa Buchman⁽¹⁾, Simha Sibony⁽¹⁾, James P. Burn⁽²⁾

⁽¹⁾*MMATECH Ltd, Israel*

⁽²⁾*Orthopedics, FRACS, New Zealand*

-3

Enhanced Hydrogen Photo-Production in Microalgae by Computational based Genetic Engineering

Iddo Weiner^(1, 2), Iftach Yacoby⁽²⁾, Tamir Tuller⁽¹⁾

⁽¹⁾*Department of Biomedical Engineering, The Iby and Aladar Fleischman Faculty of Engineering, Tel Aviv University, The Lab for Computational, Systems and Synthetic Biology, Israel*

⁽²⁾*School of Plant Sciences and Food Security, The George S. Wise Faculty of Life Sciences, Tel Aviv University, The Lab for Renewable Energy Studies, Israel*

-4

The use of Skeletal Muscle-Derived Pericytes in Tissue Engineering of Skeletal Muscle Graft based on 3D Pluronic-Fibrinogen (FF-127) Hydrogel Environment

Raziel Hamami, Dror Seliktar

Bio Medical Engineering, Thechnion, Israel

-5

Experimental Study of Methods for Treatment of Aortic Arch Aneurysm

Shirly Steinlauf^(1, 2), Alex Liberzon⁽¹⁾, Idit Avrahami⁽²⁾

⁽¹⁾*Mechanical engineering, Tel Aviv University, Israel*

⁽²⁾*Mechanical Engineering & Mechatronics, Ariel University, Israel*

-6

Novel Optical Sensor in Toilet Aimed at Extracting Vital Medical Information from Excretions

Yaara Kapp-Barnea

-, OutSense, Israel

-7

Calibration-Free Pulse Oximetry Based on Two Wavelengths in the Infrared

Ohad Yossef Hay^(1, 3), Meir Cohen⁽¹⁾, Itamar Nitzan⁽²⁾, Ruben Bromiker⁽²⁾, Yair Kasirer⁽²⁾, Yitzhak Yitzhaky⁽³⁾, Meir Nitzan⁽¹⁾, Shlomo Engelberg⁽¹⁾

⁽¹⁾*Department of Physics/Electro-Optics Engineering, Jerusalem College of Technology, Israel*

⁽²⁾*Neonatal Intensive Care Unit, Shaare Zedek Medical Center, Israel*

⁽³⁾*Department of Electro-Optics Engineering, Ben-Gurion University of the Negev, Israel*

-8

Characterization of Normal and Blepharospasm Blinks by the Eyelid Motion Monitor

Adi Hanuka⁽¹⁾, **Oz Levinkron**⁽²⁾, Shir Laufer⁽¹⁾, Naama Pearl⁽¹⁾, Daniel Briscoe⁽²⁾, Levi Schachter⁽¹⁾

⁽¹⁾*Electrical Engineering, Technion, Israel*

⁽²⁾*Faculty of Medicine, Technion, Israel*

-9

Products used for Prevention of Medical Device-Related Pressure Ulcers Strikingly vary in their Stiffness Properties

Golan Amrani, Amit Gefen

Department of Biomedical Engineering, Tel Aviv University, Israel

-10

The Manipulation of Cell Response by Scaffolds' 3-dimensional Pore Architecture

Sasha Berdichevski⁽¹⁾, Roger A Brooks⁽²⁾, Mark A Birch⁽²⁾, Athina E Markaki⁽¹⁾

⁽¹⁾*Department of Engineering, University of Cambridge, UK*

⁽²⁾*Division of Trauma and Orthopaedic Surgery, Addenbrooke's Hospital, University of Cambridge, UK*

-11

Morphology and Motility Changes in Differentiating Adipocytes

Maayan Lustig⁽¹⁾, Irena Levitsky⁽¹⁾, Yuliya Zadka⁽¹⁾, Amit Gefen⁽¹⁾, Dafna Benayahu⁽²⁾

⁽¹⁾*Department of Biomedical Engineering, Faculty of Engineering, Tel Aviv University, Israel*

⁽²⁾*Department of Cell and Developmental Biology, Sackler School of Medicine, Tel Aviv University, Israel*

-12

Simple and Easy-to-use Graphical User Interface (GUI) for Accurate and Stable Mapping of T₂ Relaxation Values

Dvir Radunsky⁽¹⁾, Noam Ben-Eliezer^(1, 2, 3)

⁽¹⁾*Biomedical Engineering, Tel Aviv University, Israel*

⁽²⁾*Sagol School of Neuroscience, Tel Aviv University, Israel*

⁽³⁾*Center for Advanced Imaging Innovation and Research (CAI2R), New-York University Langone Medical Center, USA*

Effects of Cyclic Stretch on Cell Proliferation in Culture Models of Wounds

Rona Katzengold, Amit Gefen

Biomedical Engineering, Tel-Aviv University, Israel

Protective Efficacy of Sacral Prophylactic Dressings: Computational Modeling Studies

Dafna Schwartz, Ayelet Levy, Amit Gefen

Department of Biomedical Engineering, Tel Aviv University, Israel

Effects of Humidity on Skin Friction against Medical Textiles as Related to Prevention of Superficial Pressure Injuries

Ayelet Haimy, Danit Schwartz, Yana Katsman, Amit Gefen

Biomedical engineering, Tel Aviv University, Israel

Soft Tissue Deformations under the Weight-bearing Sacrum while Using a Prophylactic Dressing in Combination with Support Surfaces: MRI Studies

Lea Cohen⁽¹⁾, Ayelet Levy⁽¹⁾, Nogah Shabshin⁽²⁾, Ziv Neeman⁽²⁾, Amit Gefen⁽¹⁾

⁽¹⁾*Department of Biomedical Engineering, Faculty of Engineering, Israel*

⁽²⁾*Medical Imaging Institute, Emek Medical Center, Israel*

Less Signals, Better Processing Results – Ultrasound Multiplicative Arrays Benefits and Opportunities

Omri Soceanu⁽¹⁾, Moshe Porat⁽¹⁾, Zvi Friedman⁽²⁾

⁽¹⁾*Electrical Engineering, Technion, Israel*

⁽²⁾*Biomedical Engineering, Technion and TechsoMED, Israel*

Wound Healing Assay of a Cell Monolayer Containing Two Types of Cells Labeled with Photothermal Gold Nanoparticles

Shir Cohen Maslaton, Nir Turko, Natan Shaked

Department of Biomedical Engineering, Tel Aviv University, Israel

A Novel Compression Algorithm for Medical Ultrasound Images based on Shape-Adaptive Transforms and Interpolation Schemes

Shira Nemirovsky-Rotman⁽¹⁾, Moshe Porat⁽¹⁾, Zvi Friedman⁽²⁾

⁽¹⁾*Electrical Engineering, Technion, Israel*

⁽²⁾*Biomedical Engineering, Technion, Israel*

Ultrasound Imaging using Clutter Rejection

Avi Goldman⁽⁰⁾, Zvi Friedman^(0, 1), Moshe Porat⁽⁰⁾

⁽⁰⁾*Electrical Engineering, Technion, Israel*

⁽⁰⁾*Biomedical Engineering, Technion, Israel*

⁽¹⁾*Ultrasound, TechsoMED, Israel*

Design and Construction of Three Dimensional *in Vitro* Model for Investigation of Ovarian Carcinoma Progression Mechanisms

Aharon Shmuel Baskin^(1, 2), Reuven Reich⁽²⁾, Ben Davidson^(3, 4), Tali Tavor - Reem⁽¹⁾

⁽¹⁾*Dep. Of Pharmaceutical Engendering, Azrieli College of Engineering, Israel*

⁽²⁾*Institute of Drug Research, School of Pharmacy, Faculty of Medicine, The Hebrew University of Jerusalem, Israel*

⁽³⁾*Department of Pathology, Oslo University Hospital, Norwegian Radium Hospital, Norway*

⁽⁴⁾*The Medical Faculty, University of Oslo, Norway*

Combined Nano-fabrication process for Hybrid Retinal Implant - A Novel Approach for Sight Restoration

Gal Shpun^(1, 2, 4), Yoav Chemla^(1, 3, 4), Itai Henn^(1, 3, 4), Amos Markus^(1, 3), Nairouz Farah^(1, 3), Yossi Mandel^(1, 3, 4)

⁽¹⁾*School of Optometry and Visual Science, Faculty of Life Science, Bar Ilan University, Israel*

⁽²⁾*The Alexander Kofkin Faculty of Electrical Engineering, Bar-Ilan University, Israel*

⁽³⁾*Mina and Everard Goodman Faculty of Life Sciences, Bar-Ilan University, Israel*

⁽⁴⁾*BINA- Bar Ilan Institute for Nanotechnology and Advanced Materials, Bar-Ilan University, Israel*

Mechanobiology Based Prediction of Metastatic Invasiveness of Pancreatic Tumors

Yulia Merkher⁽¹⁾, Ofir Ben-Ishay⁽²⁾, Yoram Kluger⁽²⁾, Daphne Weihs⁽¹⁾

⁽¹⁾*Faculty of Biomedical Engineering, Technion Israel Institute of Technology, Israel*

⁽²⁾*General Surgery, Rambam Health Care Campus, Israel*

Genomic and Environmental Selection on Local mRNA Folding Strength in Protein-coding Sequences Across the Tree of Life

Michael Peeri⁽¹⁾, Tamir Tuller^(1, 2)

⁽¹⁾*Department of Biomedical Engineering, Tel-Aviv University, Israel*

⁽²⁾*Sagol School of Neuroscience, Tel-Aviv University, Israel*

The COP9 Signalosome Influences the Epigenetic Landscape of Arabidopsis Thaliana

Tamir Tuller^(1, 2), Alon Diamant⁽¹⁾, Avital Yahalom⁽³⁾, Assaf Zemach⁽³⁾, **Shimshi Atar**⁽¹⁾, Daniel A. Chamovitz⁽³⁾

⁽¹⁾*Department of Biomedical Engineering, Tel-Aviv University, Israel*

⁽²⁾*Sagol School of Neuroscience, Tel-Aviv University, Israel*

⁽³⁾*School of Plant Sciences and Food Security, Tel Aviv University, Israel*

Enhancing Voice Quality in Vocal Tract Rehabilitation Device

Vered Aharonson^(1, 2), Bianca Sutcliffe⁽²⁾, Lindzi Wiggins⁽²⁾, David Rubin⁽²⁾

⁽¹⁾*Medical Engineering, Afeka Tel Aviv academic College of Engineering, Israel*

⁽²⁾*Biomedical Engineering, University of the Witwatersrand, Johannesburg, South Africa, South Africa*

An Age Adapting Electrolarynx – A Feasibility Study

Vered Aharonson^(1, 2), Pieter Coetzee⁽²⁾, Joice Lamfel⁽²⁾, David Rubin⁽²⁾

⁽¹⁾*Medical Engineering, Afeka Tel Aviv academic College of Engineering, Israel*

⁽²⁾*Biomedical Engineering, University of the Witwatersrand, Johannesburg, South Africa, South Africa*

Intravenous Drug Release from Different Peripheral Catheters

Halit Yaakovovich, Or Koren, Sapir Gohari, Sharon Chapas, Uri Zaretsky, Dar Weiss, Shmuel Einav

The Department of Biomedical Engineering, Tel-Aviv University, Israel

Methodological Aspects of Recording and Analyzing Electroencephalographic Signals during Locomotion

Evyatar Arad⁽¹⁾, Ronny P. Bartsch⁽²⁾, Jan W. Kantelhardt⁽³⁾, Meir Plotnik^(1, 4)

⁽¹⁾*Center of Advanced Technologies in Rehabilitation, Sheba Medical Center, Israel*

⁽²⁾*Department of Physics, Bar-Ilan University, Israel*

⁽³⁾*Institute of Physics, Faculty of Natural Sciences II, Martin-Luther-University Halle-Wittenberg, Germany*

⁽⁴⁾*Department of Physiology and Pharmacology, Sackler Faculty of Medicine, Tel Aviv University, Israel*

Rheology Reveals Pro-metastatic Lung Stiffening Following Exposure to Tumor-derived Microparticles

Tamar Barenholz-Cohen⁽¹⁾, Yulia Merkher⁽¹⁾, Dvir Shehter⁽²⁾, Yuval Shaked⁽²⁾, Daphne Weihs⁽¹⁾

⁽¹⁾*Biomedical Engineering, Technion-Israel Institute of technology, Israel*

⁽²⁾*Medicine, Technion-Israel Institute of technology, Israel*

Evaluating Mechanical Invasiveness of Breast Cancer Stem Cells

Martha Alvarez-Elizondo, Daphne Weihs

Biomedical Engineering, Technion - Israel Institute of Technology, Israel

A Computational Unsupervised Tool for Coding Sequence Optimization in Any Given Organism

Alon Diament⁽¹⁾, **Iddo Weiner**⁽²⁾, **Noam Shahar**⁽²⁾, Shira Landman⁽²⁾, Yael Feldman⁽²⁾, Shimshi Atar⁽¹⁾, Meital Avitan⁽²⁾, Shira Schweitzer⁽²⁾, Iftach Yacoby⁽²⁾, Tamir Tuller^(1, 3)

⁽¹⁾*Biomedical Engineering Dept., Tel Aviv University, Israel*

⁽²⁾*Molecular Biology and Ecology of Plants Dept., Tel Aviv University, Israel*

⁽³⁾*The Sagol School of Neuroscience, Tel Aviv University, Israel*

Unsupervised Approach for Inferring Gene Networks and Function Based on the Genome Alone

Maya Galili^(1, 2), Tamir Tuller^(1, 3)

⁽¹⁾*Biomedical Engineering, Tel Aviv University, Israel*

⁽²⁾*Dept. of Molecular Microbiology & Biotechnology, Tel Aviv University, Israel*

⁽³⁾*The Sagol School of Neuroscience, Tel Aviv University, Israel*

A Machine-learning Approach for the Prediction of the Anaerobic Mechanical Power Outputs from Submaximal Exercise Stress Test

Efrat Leopold, Tamir Tuller, Mickey Scheinowitz

Department of Biomedical Engineering, Tel Aviv University, Israel

Computational Analysis of the Oscillatory Behavior at the Translation Level Induced by mRNA Levels Oscillations due to Finite Intracellular Resources

Yoram Zarai, Tamir Tuller

Biomedical, Tel Aviv University, Israel

Discrete Whole Cell Model of Translation Enables Connecting the Genotype to the Phenotype

Doron Levin⁽¹⁾, Tamir Tuller^(1, 2)

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(2)The Sagol School of Neuroscience, Tel-Aviv University, Israel

Significant Differences in Terms of Codon Usage Bias between Early and Late Bacteriophages Gene

Oriah Mioduser

Biomedical Engineering, Tel Aviv University, Israel

Dynamics in Translation Elongation Rates During the Yeast Meiosis Selectively Regulate Gene Expression

Renana Sabi, Tamir Tuller

Biomedical Engineering, Tel Aviv University, Israel

Computational Deciphering and Modeling of the Regulatory Information Encoded in the Porcine Circovirus Genome

Lia Baron, Tamir Tuller

Bio Medical Engineering, Tel Aviv University, Israel

The Interaction with the 16S rRNA Component of the Small Ribosomal Subunit Shapes the Transcriptomes of Prokaryotes

Shir Bahiri⁽¹⁾, Dana Yacobi⁽¹⁾, Tamir Tuller^(1, 2)

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Exploring the Evidences of Selection for Local Intrinsic Disorder in Proteins Across the Tree of Life

Arup Panda, Tamir Tuller

Department of Biomedical Engineering, Tel Aviv University, Israel

Modeling Biochemical Reactions and Gene Networks with Memristors

Hanna Abo Hanna

Biomedical Engineering, Technion - Israel Institute of Technology, Israel

Comparison of Systolic Blood Pressure Values Obtained by Photoplethysmography and by Korotkoff Sounds

Eran Shalom^(1, 3), Shlomo Engelberg⁽²⁾, Elad Hirshthal⁽¹⁾, Yitzhak Yitzhaky⁽³⁾, Itzhak Slotki⁽⁴⁾, Shavit Linda⁽⁴⁾, Meir Nitzan⁽¹⁾

⁽¹⁾Department of Physics/Electro-Optics Engineering, Jerusalem College of Technology, Israel

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⁽³⁾The unit of Electro-Optics Engineering, Ben-Gurion University of the Negev, Israel

⁽⁴⁾Department of Nephrology, Shaare Zedek Medical Center, Israel

Synthetic Data Converters in Living Cells

Luna Rizik, Ramez Daniel

Biomedical Engineering, Technion-Israel Institute of Technology, Israel

The Rule of Cooperativity in Protein-gene Networks Scale

Lena Danielli, Ramiz Daniel

Biomedical engineering, Technion, Israel

Genetic Oscillator Circuit without Delay – Design and Investigation

Einell Chaimovitz, Ramiz Daniel, Netanel Korin

Biomedical engineering, Technion, Israel

Computerized Static and Dynamic Balance Measurements in Panic Disorder Patients

Shani Kimel Naor⁽¹⁾, Revital Amiaz^(2, 3), Efrat Czerniak^(2, 3), Yotam Bahat⁽¹⁾, Asaf Caspi^(2, 3), Meir Plotnik^(1, 3, 4)

⁽¹⁾*Center of Advanced Technologies in Rehabilitation, Sheba medical center, Israel*

⁽²⁾*The Psychiatry Department, Sheba medical center, Israel*

⁽³⁾*Sackler Faculty of Medicine, Tel-Aviv University, Israel*

⁽⁴⁾*Sagol School of Neuroscience, Tel Aviv University, Israel*

Placenta-derived Mesenchymal Stromal-like Cells Promote Neutrophil Maturation and Macrophage Differentiation into M2 Like Phenotype

Rony Shaked Nitzan, Noa Sher, Racheli Ofir

Research department, Pluristem LTD, Israel

Universal Evolutionary Selection for High Dimensional Silent Patterns of Information Hidden in the Redundancy of Viral Genetic Code

Eli Goz⁽¹⁾, Zohar Zafrir⁽¹⁾, Tamir Tuller^(1, 2)

⁽¹⁾*Biomedical Engineering, Tel-Aviv University, Israel*

⁽²⁾*Sagol School of Neuroscience, Tel-Aviv University, Israel*

Highly Efficient Flavin–Adenine Dinucleotide Glucose Dehydrogenase Fused to a Minimal Cytochrome C Domain

Itay Algov⁽¹⁾, Jennifer Grushka⁽¹⁾, Raz Zarivach^(1, 2), Lital Alfonta⁽¹⁾

⁽¹⁾*Department of Life Sciences and Ilse Katz Institute for Nanoscale Science and Technology, Ben-Gurion University of the Negev, Israel*

⁽²⁾*National Institute for Biotechnology in the Negev, Ben-Gurion University of the Negev, Israel*

Coupled Dictionary Learning for Multi-contrast MRI Reconstruction

Lior Weizman⁽¹⁾, Pingfan Song⁽²⁾, Joao Mota⁽³⁾, Miguel Rodrigues⁽²⁾, Yonina Eldar⁽¹⁾

⁽¹⁾*Electrical Engineering, Technion, Israel Institute of Technology, Israel*

⁽²⁾*Electrical Engineering, University College London, UK*

⁽³⁾*Sensors, Signals and Systems, Heriot-Watt University, UK*

A Code for Transcription Elongation Speed

Eyal Cohen⁽¹⁾, **Zohar Zafrir**⁽²⁾, Tamir Tuller^(2, 3)

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⁽³⁾*Sagol School of Neuroscience, Tel Aviv University, Israel*

Highly Organized Vascular Network Geometry for iPSC-derived Cardiac Muscle Tissue

Ariel Szklanny⁽¹⁾, Stacy Ramcharan⁽²⁾, Gil Arbel⁽³⁾, Lior Gepstein⁽³⁾, Joerg Lahann⁽²⁾, Shulamit Levenberg⁽¹⁾

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⁽²⁾*Chemical Engineering, University of Michigan, USA*

⁽³⁾*Sohnis Family Research Laboratory for Cardiac Electrophysiology and Regenerative Medicine, Bruce Rappaport Faculty of Medicine, Technion, Israel*

Adult Leech CNS Regeneration at the Single Cell Level: Effects of Electrical Stimulation

Sharon Cohen^(1, 2, 3), Orit Shefi^(2, 3)

⁽¹⁾*The Leslie and Susan Gonda Multidisciplinary Brain Research Center, Bar-Ilan University, Israel*

⁽²⁾*Faculty of Engineering, Bar-Ilan University, Israel*

⁽³⁾*Bar Ilan Nanotechnologies and Advanced Materials, Bar-Ilan University, Israel*

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Mucoadhesive Acrylated Chitosan Nanoparticles for Drug Delivery

Shaked Eliyahu⁽¹⁾, Anat Aharon⁽²⁾, Havazelet Bianco-Peled^(1, 3)

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⁽²⁾*Bruce Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, Israel*

⁽³⁾*Department of Chemical Engineering, Technion-Israel Institute of Technology, Israel*

How the Mechanical Forces Applied by Biological Cell Affect its Fibrous Surrounding?

Mirit Sharabi, Shir Wertheimer, Rami Haj-Ali, Ortal Shelah, Ayelet Lesman

Faculty of Engineering, Tel-Aviv University, Israel

Cancer Cell-selective Clathrin-mediated Endocytosis of Aptamer-decorated Nanoparticles

Shira Engelberg⁽¹⁾, Julia Modrejewski⁽²⁾, Johanna G. Walter⁽²⁾, Yoav D. Livney⁽¹⁾, Yehuda G. Assaraf⁽³⁾

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⁽²⁾*Institute for Technical Chemistry, Leibniz University, Germany*

⁽³⁾*Biology, Technion-Israel Institute of Technology, Israel*

Magnetic Targeting of Drug Carriers and Cells for Local Therapeutics

Michal Marcus, Raj Kumar, Orit Shefi

Faculty of Engineering and The Institute of Nanotechnology and Advanced Materials, Bar Ilan University, Israel

Engineering Bacterial Biosensor through Synthetic Biology Design

Phyana Litovco, Ramez Daniel

Faculty of Biomedical Engineering, Technion, Israel

Ensuring Host Fitness via Ramp Engineering

Hadas Zur⁽¹⁾, Rachel Cohen-Kupiec⁽¹⁾, Tamir Tuller^(1, 2)

⁽¹⁾*Department of Biomedical Engineering, Tel Aviv University, Israel*

⁽²⁾*The Sagol School of Neuroscience, Tel Aviv University, Israel*

Vessel Maturation in Pre-vascularized Engineered Graft Improves Graft-host Integration and Functionality

Shahar Ben Shaul^(1, 2), Shira Landau⁽¹⁾, Uri Merdler⁽¹⁾, Shulamit Levenberg⁽¹⁾

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Casein Based Nano-Vehicles for Oral Delivery of Chemotherapeutic Combinations to Overcome Multidrug Resistance in Gastric Cancer

Maya Bar-Zeev^(1, 2, 3), Yehuda G. Assaraf⁽³⁾, Yoav D. Livney^(1, 2)

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(2)Department of Biotechnology and Food Engineering, Technion - Israel Institute of Technology, Israel

(3)Department of Biology, Technion - Israel Institute of Technology, Israel

Innervation of an Engineered Muscle Graft for Reconstruction of Muscle Defects

Ben Kaplan^(1, 2), Tal Kaufman^(3, 4), Luba Perry^(1, 5), Yulia Shandalov⁽¹⁾, Itay Srugo⁽⁶⁾, Dean Ad-El^(3, 4), Shulamit Levenberg⁽¹⁾

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(3)Department of Plastic Surgery, Rabin Medical Center, Israel

(4)Sackler School of Medicine, Tel Aviv University, Israel

(5)Inter-departmental Program in Biotechnology, Technion- Israel Institute of Technology, Israel

(6)Vetneuro, Vetneuro, Israel

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Rapid Phenotypic Antimicrobial Susceptibility Testing using Nanoliter Droplet Arrays

Jonathan Avesar⁽¹⁾, Dekel Rosenfeld⁽¹⁾, Marianna Truman-Rosentsvit⁽²⁾, Tom Ben-Arye^(1, 3), Yuval Geffen⁽⁴⁾, Moran Bercovici⁽²⁾, Shulamit Levenberg^(1, 3)

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(2)Mechanical Engineering, Technion Israel Institute of Technology, Israel

(3)Russel Berrie Nanotechnology Institute, Technion Israel Institute of Technology, Israel

(4)RambamHealth Care Campus, Technion Israel Institute of Technology, Israel

Flow-Induced Vascular Network Formation and Maturation in Three-Dimensional Engineered Tissue

Barak Zohar⁽¹⁾, Yaron Blinder^(1, 3), David J Mooney^(2, 3), Shulamit Levenberg⁽¹⁾

(1)Biomedical Engineering, Technion-Israel Institute of Technology, Israel

(2)School of Engineering and Applied Sciences, Harvard University, USA

(3)Wyss Institute for Biologically Inspired Engineering, Harvard University, USA

Identification of Protein-protein Interactions using Magnetic Modulation Biosensing System

Shira Roth, Yehudit Michelson, Tal Iluz, Amos Danielli

Engineering, Bar-Ilan University, Israel

A Novel Metabolic-Based Method for Functional CT Imaging and Differentiation Between Cancer and Inflammation

Tamar Dreifuss, Menachem Motiei, Rachela Popovtzer

Faculty of Engineering and the Institute of Nanotechnology & Advanced Materials, Bar-Ilan University, Israel

Imaging Acoustic Vibrations in the Tympanic Membrane Using Spectrally Encoded Interferometry

Matan Hamra

Biomedical Engineering, Technion, Israel

Development of an Integrated Circuit that Performs Simulations of mRNA Translation Dynamics

Yasmin Slonimski⁽¹⁾, Tamir Tuller^(1, 2)

⁽¹⁾*Biomedical Engineering, Tel Aviv University, Israel*

⁽²⁾*Sagol School of Neuroscience, Tel Aviv University, Israel*

High Contrast High Frame Rate Medical Ultrasound using Multi Line Acquisition and FDMAS Beamforming

Grigoriy Zurakhov, Zvi Friedman, Dan Adam

Biomedical Engineering, Technion - IIT, Israel

Semi-Automatic Segmentation of the LV Cavity in Contrast Enhanced Echocardiographic Clips

Nadir Cohen⁽¹⁾, Michael Becker⁽²⁾, Steven Feinstein⁽³⁾, Dan Adam⁽¹⁾

⁽¹⁾*Department of Biomedical Engineering, Technion - Israel Institute of Technology, Israel*

⁽²⁾*Department of Cardiology, RWTH University, Germany*

⁽³⁾*Department of Cardiology, Rush University Medical Center, USA*

Forces and Regulation of Vascular Network

Shira Landau, Shulamit Levenberg

Biomedical Engineering, Technion, Israel

PEG-fibrinogen Hydrogel Controlled Release System Of Antisense Oligonucleotide for the Treatment of Duchenne Muscular Dystrophy

Shani Cohen, Dror Seliktar

Faculty of Biomedical Engineering, Technion, Israel Institute of Technology, Israel

Towards a Noninvasive Retinal Prosthesis: In vivo Ultrasonic Retinal Stimulation

Milagros Prendes⁽¹⁾, Josh Nehrer⁽¹⁾, Eitan Kimmel⁽²⁾, Shy Shoham⁽²⁾

⁽¹⁾*Faculty of Biomedical Engineering, Technion - Israel Institute of Technology, Israel*

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Vascular Targeting of Nano Carriers in Arterial Bifurcations

Maria Khoury, Mark Epshtein, Moran Levi, Netanel Korin

Biomedical Engineering, Technion, Israel

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Pilot Measurements of Coronary Flow Reserve (CFR) and Comparison to Myocardial Perfusion Imaging (MPI) using Dynamic and Gated Stress/Rest ^{99m}Tc-SESTAMIBI CZT-SPECT

Alexander Krakovich⁽¹⁾, Israel Moalem⁽³⁾, Alexei Naimushin⁽³⁾, Eli Rozen⁽³⁾, Mickey Scheinowitz⁽¹⁾, Ronen Goldkorn^(2, 3)

⁽¹⁾*Department of Biomedical Engineering, Tel Aviv University, Israel*

⁽²⁾*Sakler School of Medicine, Tel Aviv University, Israel*

⁽³⁾*The Leviev Heart Center, Sheba Medical Center, Israel*

Resonant Based Light Amplification for a High Resolution Optical Retinal Prosthesis

Gal Shpun^(1, 2, 4), **Asaf Shoval**^(1, 3), Nairouz Farah^(1, 3), Zeev Zalevsky^(2, 4), Yossi Mandel^(1, 3, 4)

⁽¹⁾*Optometry and Visual Science, Faculty of Life Science, Bar-Ilan University, Israel*

⁽²⁾*The Alexander Kofkin Faculty of Electrical Engineering, Bar-Ilan University, Israel*

⁽³⁾*Mina and Everard Goodman Faculty of Life Sciences, Bar-Ilan University, Israel*

⁽⁴⁾*BINA - Bar Ilan Institute for Nanotechnology and Advanced Materials, Bar-Ilan University, Israel*

Adipose Tissue Engineering Construction in 3D Matrigel-Collagen Extracellular Matrix

Orna Sharabani-Yosef, Ofir Ziv, Harel Maimon, Amit Gefen

Biomedical engineering, Faculty of Engineering, Tel Aviv University., Israel

A Novel Processing and Interactive GUI Package for Calculating Global, Segmental and Layer Specific Strains

Ivgeni Kucherov, Avi Nahmani, Dan Adam

Faculty of Biomedical Engineering, Laboratory for Ultrasound Signal and Image Processing and Modeling, Technion, IIT, Israel

The Effect of Low-Intensity ultrasound and Met Signaling on Cancer Cell Motility for Improved Diagnosis and Treatment

Nasma Mazzawi⁽¹⁾, Ilan Tsarfaty⁽²⁾, Yechezkel Barenholz⁽³⁾, Ilan Bruchim⁽¹⁾, Eitan Kimmel⁽¹⁾

⁽¹⁾*Biomedical Engineering, Technion, Israel*

⁽²⁾*Department of Clinical Microbiology and Immunology, Tel Aviv University, Israel*

⁽³⁾*Department of Biochemistry, Hebrew University-Hadassah Medical School, Israel*

Nonlinear Elasticity of Biological Fibrous Networks Facilitates Efficient Inter-cellular Mechanical Signalling

Ran S Sopher, Hanan Tokash, Mirit Sharabi, Oren Tchaicheeyan, Ayelet Lesman

School of Mechanical Engineering, Faculty of Engineering, Tel-Aviv University, Israel

Injectable Scaffolds for Tissue Engineering Applications

Shir Giladi⁽¹⁾, Helen Guez⁽¹⁾, Oded Pinkas⁽¹⁾, Adar Lux⁽¹⁾, Tiberiu Shulimzon⁽²⁾, Meital Zilberman⁽¹⁾

⁽¹⁾*Biomedical Engineering, Tel Aviv University, Israel*

⁽²⁾*Interventional Pulmonology, Sheba Medical Center, Israel*

Glycoprotein Ib Functionalized-Nanoparticles for Targeted Drug Delivery Under High Shear Conditions

Yathreb Asaad, Netanel Korin

Biomedical Engineering, Technion, Israel

In Vivo Neuroimaging of Exosomes Using Gold Nanoparticles

Oshra Betzer^(1, 2), Nisim Perets⁽³⁾, Daniel Offen⁽³⁾, Rachela Popovtzer⁽¹⁾

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⁽²⁾*The Leslie and Susan Gonda Multidisciplinary Brain Research Center, Bar Ilan University, Israel*

⁽³⁾*Felsenstein Medical Research Center, Sackler Faculty of Medicine, Tel Aviv University, Israel*

Deep Autoencoder Network for Automatic Classification of Echocardiograms Views

Hannah Ornstein, Dan Adam

Biomedical Engineering, Technion, Israel

Hybrid Soy Protein Based Structures for Wound Dressing Applications

Liron Reshef Steinberger⁽¹⁾, Ariel Furer⁽²⁾, Meital Zilberman⁽¹⁾

⁽¹⁾*Bio-medical engineering, Tel Aviv university, Israel*

⁽²⁾*The Israeli Medical Corps, Israel*

Controlled and Tunable Polymer Particles Production Using a Single Microfluidic Device

Benzion Amoyav, Ofra Benny

IDR, School of Pharmacy, Israel

Utilization of Functional MRI, EEG and Eye Tracking to Assess the Effect of a Computerized Training in Children

Rola Farah⁽¹⁾, Tzipi Horowitz-Kraus^(1, 2)

⁽¹⁾*Educational Neuroimaging Center-Faculty of Education in Science and Technology, Technion, Israel*

⁽²⁾*Division of General and Community Pediatrics, Cincinnati Childrens Hospital Medical Center, USA*

2.5D Printing of Drug-Delivery Microspheres from Melt

Tal Shpigel, Almog Uziel, Dan Lewitus

Polymers and Plastics Engineering, Shenkar - Engineering. Design. Art., Israel

Effects of Additives on Calcium Carbonate Particles

Lior Minkowicz, Arie Dagan, Ofra Benny

The Institute for Drug Research, The Hebrew University of Jerusalem, Israel

pH Responsive 3d Printed Tablets For Controlled Drug Delivery

Arnon Fluksman⁽²⁾, Liraz Larush⁽¹⁾, Inon Kaner⁽²⁾, Amol Ashok Pawar⁽¹⁾, Polina Lesnovski⁽¹⁾, Aviad Tamsut⁽²⁾, Ofra Benny⁽²⁾, Shlomo Magdassi⁽¹⁾

⁽¹⁾*Casali Center of Applied Chemistry, Institute of Chemistry, Hebrew University of Jerusalem, Israel*

⁽²⁾*Institute for Drug Research, School of Pharmacy, Faculty of Medicine, The Hebrew University of Jerusalem, Israel*

Mechanical Stimuli Vs Cell Deformability

Yoel Goldstein⁽¹⁾, Yifat Brill-Karniely⁽¹⁾, Talya Bachner⁽¹⁾, Danny Bavli⁽²⁾, Ofra Benny⁽¹⁾

⁽¹⁾*Faculty of Medicine, School of Pharmacy, Hebrew University, Israel*

⁽²⁾*Epigenetic lab, Department of Bio-Chemistry, Hebrew University, Israel*

Support Vector Machine (SVM) Learning Tool for the Interpretation of Cardiopulmonary Exercise Test Results

Or Inbar⁽¹⁾, Hayit Greenspan⁽¹⁾, Ronen Reuveni⁽²⁾, Michael Segel⁽²⁾, Omri Inbar⁽²⁾, Mickey Scheinowitz⁽¹⁾

⁽¹⁾*Department of Biomedical Engineering, Tel Aviv University, Israel*

⁽²⁾*The Institutes of Lung Diseases, Sheba Medical Center, Israel*

Reconstructing 3-Dimensional Hand Movements from Electroencephalographic Signals

Omer Ben-zur

Electrical and Electronics Engineering, HIT - Holon Institute of Technology, Israel

Pneumothorax Detection in Chest Radiographs Using Convolutional Neural Networks

Aviel Blumenfeld, Hayit Greenspan

Department of Biomedical Engineering, Tel Aviv University, Israel

Shear Free System for Development of Modified RBC as Shear Induced Anticoagulation Drug Targeting

Yuval Gabso⁽¹⁾, Netanel Korin⁽²⁾, Idit Avrahami⁽¹⁾

⁽¹⁾*Mechanical Engineer, Ariel University, Israel*

⁽²⁾*Biomedical Engineering, Technion, Israel*

Fast Image-Guided Stratification Using Anti-PDL1 Gold Nanoparticles for Cancer Immunotherapy

Rinat Meir, Katerina Shamalov, Tamar Sadan, Menachem Motiei, Gur Yaari, Cyrille J. Cohen, Rachela Popovtzer

14:30-15:00 Plenary 2

Oren Hall - Main Hall

14:30-14:55

Apparatus and Methods for Magnetic Control of Radiation Electron Beams

Dror Alezra

Radiation Oncology Department, Sheba Medical Center, Israel

15:00-15:15 Coffee Break

Foyer

15:15-16:15 Session 11: Industry III Development Processes and Patients Treatments

Oren Hall - Main Hall

Chairperson: Moshe Brand, Mirit Sharabi

15:15-15:30

Transdermal Drug Delivery Systems

Amir Toren

NGT3, Israel

15:30-15:45

Chronic Disease and Care Management- Innovative Tools for Community Care Addressing Doctor Nurse and Patient

Hadas Lewy

Clalit Research Institute, Israel

15:45-16:00

Establishment of a Strategic Collaboration in the Field of Preclinical Medical Device efficacy and safety evaluation, and Use of Newly Developed Live Real time Telepathology to Report Histopathology Findings

Abraham Nyska⁽¹⁾, Roni Shabat⁽¹⁾, Eleonora Mattei⁽²⁾, Germano Oberto⁽²⁾, Francisco Miguel Sánchez Margallo⁽¹⁾

⁽¹⁾*CCMI, Israel*

⁽²⁾*RTC SpA, Pomezia, Italy*

15:15-16:15 Session 12: Medical Robotics

Alon Hall

Chairpersons: Ilana Nisky, Shelly Levy-Tsedek

15:15-15:35

Medical Robotics Today and Future Directions

Alon Wolf

Faculty of Mechanical Engineering, Technion I.I.T, Israel

15:35-15:55

Social Robotics for Rehabilitation

Shelly Levy-Tsedek

Department of Physical Therapy, Ben Gurion University, Israel

15:55-16:15

Properties Balance Control Associated with Unexpected Loss of Balance: Age-related Differences

Itzhak Meltzer

Physical Therapy Department, Faculty of Health Sciences at Ben-Gurion University of the Negev, Israel

15:15-16:15 Session 13: Tissue Engineering

Tamar Hall

Chairpersons: Shulamit Levenberg, Tal Dvir

15:15-15:30

Past, Present, and Future of Hydrogel-Based Tissue Engineering

Dror Seliktar

15:30-15:45

Constructing a 3D *in Vitro* Embryo Implantation Model

Dganit Stern⁽¹⁾, Reuven Reic⁽¹⁾, Tali Tovor-Reem⁽²⁾

⁽¹⁾*Institute of Drug Research, School of Pharmacy, The Hebrew University of Jerusalem, Israel*

⁽²⁾*Department of Pharmaceutical Engineering, Azrieli College of Engineering, Israel*

15:45-16:00

Beyond the Chip: Development of a Micro-Physiological Multi-Organ Flux Analyzer

Yaakov Nahmias

Grass Center for Bioengineering, The Hebrew University of Jerusalem, Israel

16:00-16:05

Combined Nano-fabrication process for Hybrid Retinal Implant - A Novel Approach for Sight Restoration

Gal Shpun^(1, 2, 4), Yoav Chemla^(1, 3, 4), Itai Henn^(1, 3, 4), Amos Markus^(1, 3), Nairouz Farah^(1, 3), Yossi Mandel^(1, 3, 4)

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⁽²⁾*The Alexander Kofkin Faculty of Electrical Engineering, Bar-Ilan University, Israel*

⁽³⁾*Mina and Everard Goodman Faculty of Life Sciences, Bar-Ilan University, Israel*

⁽⁴⁾*BINA- Bar Ilan Institute for Nanotechnology and Advanced Materials, Bar-Ilan University, Israel*

16:05-16:10

Innervation of an Engineered Muscle Graft for Reconstruction of Muscle Defects

Ben Kaplan^(1, 2), Tal Kaufman^(3, 4), Luba Perry^(1, 5), Yulia Shandalov⁽¹⁾, Itay Srugo⁽⁶⁾, Dean Ad-El^(3, 4), Shulamit Levenberg⁽¹⁾

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⁽²⁾*Bruce Rapaport Faculty of Medicine, Technion- Israel Institute of Technology, Israel*

⁽³⁾*Department of Plastic Surgery, Rabin Medical Center, Israel*

⁽⁴⁾*Sackler School of Medicine, Tel Aviv University, Israel*

⁽⁵⁾*Inter-departmental Program in Biotechnology, Technion- Israel Institute of Technology, Israel*

⁽⁶⁾*Vetneuro, Vetneuro, Israel*

15:15-16:15 Session 14: Cardiovascular II

Rimon Hall

Chairperson: Zehava Blechman

15:15-15:30

A Novel Modality for Assessing the Severity of Atherosclerosis Disease

Amit Livneh⁽¹⁾, Alexandra Alexandrovich⁽¹⁾, Yehuda G. Wolf⁽²⁾, Noam Amit⁽¹⁾, Shany Glatstein⁽¹⁾, Amir Landesberg⁽¹⁾

⁽¹⁾*Faculty of Biomedical Engineering, Technion-Israel Institute of Technology, Israel*

⁽²⁾*Department of Vascular Surgery, Tel Aviv Sourasky Medical Center, Israel*

15:30-15:45

The Microvascular Response to Photobiomodulation in Healthy Subjects – The Role of Wavelength, Gender, and Age: A Randomized Controlled Clinical Study

Lilach Gavish⁽¹⁾, Lilach Dudai⁽²⁾, Moshe Halak⁽³⁾, Benjamin Gavish⁽⁴⁾, Zehava Ovadia-Blechman⁽²⁾

⁽¹⁾*Department of Medical Neurobiology, Hebrew University of Jerusalem, Israel*

⁽²⁾*Department of Medical Engineering, Afeka Tel-Aviv Academic College of Engineering, Israel*

⁽³⁾*Department of Vascular Surgery, Sheba Medical Center, Israel*

⁽⁴⁾*Yazmonit Ltd., Eshtaol, Israel*

15:45-16:00

The Association of Arterial Properties Derived from Ambulatory Blood Pressure Measurements with Brain MRI Measures

Benjamin Gavish⁽¹⁾, Therese Tillin⁽²⁾, Hughes Alun D.⁽²⁾, Chaturvedi Nish⁽²⁾

⁽¹⁾*Yazmonit Ltd., Israel*

⁽²⁾*Institute of Cardiovascular Science, Faculty of Population Health Sciences, University College London, UK*

16:00-16:05

Vascular Targeting of Nano Carriers in Arterial Bifurcations

Maria Khoury, Mark Epshtein, Moran Levi, Netanel Korin

Biomedical Engineering, Technion, Israel

16:05-16:10

Experimental Study of Methods for Treatment of Aortic Arch Aneurysm

Shirly Steinlauf^(1, 2), Alex Liberzon⁽¹⁾, Idit Avrahami⁽²⁾

⁽¹⁾*Mechanical engineering, Tel Aviv University, Israel*

⁽²⁾*Mechanical Engineering & Mechatronics, Ariel University, Israel*

15:15-16:15 Session 15: Big Data in Biomedical Engineering

Hadas Hall

Chairpersons: Gur Yaari, Sol Efroni

15:15-15:30

Precision Oncology: Challenges and Opportunities

Eitan Rubin

15:30-15:45

Big Data in Genomics: Stopping the Spread of Breast Cancer

Noam Shomron

Faculty of Medicine, Tel Aviv University, Israel

15:45-16:00

Neanderthals and Us: Ancient Genomes, New Data

Liran Carmel