The 62nd Israel Annual Conference on

Aerospace Science

For over six decades, IACAS is an annual event on the calendar of the aerospace community in Israel, and arouses a great deal of interest. Taking part in this yearly event are engineers, scientists, and experts in the field of aeronautics and astronautics, representing well-known local aerospace agencies and industries, as well as participants from major research centers worldwide.

The two-day conference covers new research, presents up-to-date technology, and provides a forum for exchanging new ideas.

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Brigadier General Shlomi Konforty, Head of
Materiel Directorate at the Israeli Air Force

Chair, Program Committee

Assoc. Prof. Beni Cukurel,
Department of Aerospace Engineering, Technion

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IACAS-62nd Program - Table of Content – Day I

Wednesday 15.3.2023		Dan-Panorama Tel-Aviv	
Code	Session	Hall	Page
9:00-12:00			
	Welcoming Address: Brigadier General Shlomi Konforty, Chair	Hall A	
WeKL	Keynote Lecture: Major General (Retired) Amikam Norkin, former commander of the Israeli Air Force **The Middle East from the Cockpit**		
Coffee Break 10:00-10:30			
WePl1	Douglas R. Graham – VP Strategic Initiatives, Lockheed Martin **New Age Threats Require New Age Defenses**		
WePl2	Prof. Massimiliano Vasile - University of Strathclyde **Trajectory Optimisation Under Uncertainty**		
***Lunch** 12:10-13: 15*			
13:15-15:20			
WeL1T1	Flight Sciences	A	6
WeL1T2	Platform Integration	B	7
WeL1T3	GNC - Guidance	C	8
WeL1T4	Aerodynamics - I	D	9
WeL1T5	Student Paper - I	E	10
***Coffee Break** 15:20-15:40*			
15:40-18:05			
WeL2T1	Structures	A	11
WeL2T2	Numerical Methods - I	B	13
WeL2T3	GNC - Estimation	C	14
WeL2T4	Aerodynamics - II	D	15
WeL2T5	Student Paper - II	E	16
WeL2T6	General Meeting of the Israel Society of Aeronautics & Astronautics	E	

IACAS-62nd Program - Table of Content – Day II

Thursday 16.3.2023		Technion, Haifa	
Code	Session	Hall	Page
9:00-12:00			
	Welcoming Address Aerospace Engineering Dean, Prof. Tal Shima	Churchill Hall	
ThPl4	Dr. Judith Hocherman-Frommer Executive Vice President Research and Development, RAFAEL **Strategic design for defence- Future technologies perspective**		
Coffee Break 10:00-10:30			
ThPl5	Prof. Thomas Corke - Aerospace and Mechanical Engineering Department at the University of Notre Dame **Turbulent Boundary Layer Viscous Drag Reduction - Characteristics and Mechanisms**		
ThPl6	Prof. Steve Brunton - University of Washington **Machine learning for Fluid Mechanics**		
***Lunch** 12:10-13:30*			
13:30-15:35			
ThL1T1	Combustion	A	17
ThL1T2	Numerical Methods - II	B	18
ThL1T3	Wind Tunnel Testing	C	19
ThL1T4	Fluid Mechanics - I	D	20
ThL1T5	Materials	E	21
ThL1T6	GNC - Optimal Control	F	22
ThL1T7	Industrial Projects - Platform Architecture and Subsystems	G	23
ThL1T8	Industrial Projects - Measurements and Sensing	H	24
***Coffee Break** 15:35-16:00*			
16:00-18:30			
ThL2T1	Propulsion	A	25
ThL2T2	Space Sciences	B	26
ThL2T3	Aeroelasticity and Structural Design	C	27
ThL2T4	Fluid Mechanics - II	D	28
ThL2T5	Aerodynamics - III	E	29
ThL2T6	GNC - Control and Autonomous Systems	F	30
ThL2T7	Industrial Projects - System Operation	G	31

WeL1T1 Hall A

Flight Sciences

Chair: **Ariel Dvorjetski** Israeli Air Force

13:15-13:40 WeL1T1.1

Maximizing the Throughput of Nanosatellites via Ad-hoc Multi Ground-Stations

Ronen Rony Ariel University
Boaz Ben-Moshe Ariel University

13:40-14:05 WeL1T1.2

Autonomous PHM: New Predictive Maintenance Approach in Airborne Industry

Eli Gildish RSL Electronics LTD
Michael Grebshtein RSL Electronics LTD
Igor Makienko RSL Electronics LTD
Yehudit Aperstein Afeka Tel-Aviv College of Engineering

14:05-14:30 WeL1T1.3

The potential of Flettner-rotor-powered VTOLs

Satoki Shimamune St John's College, University of Cambridge

14:30-14:55 WeL1T1.4

Alternative Mechanical Propulsion Systems for UAV

Soof Shoshana Technion
Hannah Samuels Technion
Joseph Lefkowitz Technion
Eran Sher Technion

WeL1T2 Hall B

Platform Integration

Chair: **Ohad Gur** Israel Aerospace Industries

13:15-13:40 WeL1T2.1

Engine-Propeller Matching

Ohad Gur Israel Aerospace Industries
Jacob Feldman Israel Aerospace Industries

13:40-14:05 WeL1T2.2

Installation Effect on Hover Propeller Performance

Ohad Gur Israel Aerospace Industries
Avi Ayele Israel Aerospace Industries
Marek Polčák Mejzlik Propellers s.r.o.
Radovan Dítě Mejzlik Propellers s.r.o.

14:05-14:30 WeL1T2.4

Aircraft Loads Assessment and Its Effect on Aircraft Structure: Machine Learning Approach

Yuval Freed Israel Aerospace Industries
Boris Dorfman Israel Aerospace Industries
Maoz Koren Israel Aerospace Industries

14:30-14:55 WeL1T2.5

Remote Load monitoring and Airworthiness Assessment of Inflatable Aerostat Structure Using Fiber-Optic Sensing Technology

Iddo Kressel, Uri Ben-Simon, Nadav Goldstein, Yoav Ofir, Shay Shoam Israel Aerospace Industries
Gil Gur-Arieh, Ariel Perets IDF
Moshe Tur Tel-Aviv University

WeL1T3 Hall C

GNC - Guidance

Chair: **Martin Weiss** Technion

13:15-13:40 WeL1T3.1

Pure Pursuit of an Equal Speed Evader

Mark Vlassakis US Air Force
Meir Pachter AFIT/ENG
Khanh Pham US Air Force

13:40-14:05 WeL1T3.2

Maximizing Kill Probability Using Bayesian Decision-Directed Guidance

Liraz Mudrik Technion
Yaakov Oshman Technion

14:05-14:30 WeL1T3.3

Optimal Guidance Laws for Pure Pursuit

Ilan Rusnak Rafael

14:30-14:55 WeL1T3.2

Emulation of Optimal Constrained-Impact Guidance Laws Using Virtual Target Approach

Gleb Merkulov Technion
Martin Weiss Technion
Tal Shima Technion

14:55-15:20 WeL1T3.3

Target Interception with Time Varying Acceleration Constraints

Or Nahum Technion
Vitaly Shaferman Technion

WeL1T4 Hall D

Aerodynamics - I

Chair: **Michael Karp** Technion

13:15-13:40 WeL1T4.1

Three-dimensional separation over unswept cantilevered wings at a moderate Reynolds number

Miki Amitay Rensselaer Polytechnic Institute
Jacob Neal Rensselaer Polytechnic Institute

13:40-14:05 WeL1T4.2

Flow Physics of Tapered Wings: Coupled Experiments, Computations, and Stability Analysis

Jacob Neal, Miki Amitay Rensselaer Polytechnic Institute
Jean Marques Ribeiro, Kunihiko Taira University of California
Anton Burtsev, Vassilis Theofilis University of Liverpool

14:05-14:30 WeL1T4.3

Experimental and Computational Optimization of Axis-Symmetric Shapes with Flow Control

Stav Jacob, Ofek Drori, Avi Seifert Tel Aviv University
Ran Levy, Yuval Levy, Ilya Kislitsin Israeli CFD Center

14:30-14:55 WeL1T4.4

Experimental Investigation of Embedded Shear Layer in Smooth-body Separated Flow over Boeing Bump

Patrick Gray University of Notre Dame
Igal Gluzman Technion
Flint Thomas University of Notre Dame
Thomas Corke University of Notre Dame

14:55-15:20 WeL1T4.5

Global instability of flow over a low-Reynolds airfoil

Amit Sigawi, Guangyao Cui, Michael Karp Technion

WeL1T5	Hall E

Student Paper - I

Chair: **Oksana Stalnov** — Technion

13:15-13:40 — WeL1T5.1

Programmable fabrication of Diffractive Optical Elements by Thermocapillary Action

Jonathan Ericson	Technion
Ran Eshel	Technion
Valeri Frumkin	MIT
Matan Nice	Technion
Omer Luria	Technion
Boris Ferdman	Technion
Nadav Opatovski	Technion
Khaled Gommed	Technion
Maxim Shusteff	Lawrence Livermore National Laboratory
Yoav Shechtman	Technion
Moran Bercovici	Technion

13:40-14:05 — WeL1T5.2

DriveSat

Gilad Garibi	Technion
Roy Kasachob	Technion
Adam Leiderman	Technion
Ad Tomer	Technion
Shoshana Warren	Technion
Anna Nikolaev	Technion
Itzhak Margoli	Technion
Yarden Weiss	Technion

14:05-14:30 — WeL1T5.3

CUSTER CHANNEL WING (CCW) - PHASE V Flight Test of a Modified R/C Twin Otter Aircraft Model

Moshe Zilberman	Azrieli Academic College of Engineering
Menachem Reichenberg	Azrieli Academic College of Engineering
Alon Reifen	Azrieli Academic College of Engineering

14:30-14:55 — WeL1T5.4

Fluidic Shaping of Optical Components on Arbitrary Frames

Amos Amitai Hari	Technion
Moran Bercovici	Technion

WeL2T1 Hall A

Structures

Chair: **Yuval Freed** Israel Aerospace Industries

15:40-16:05 WeL2T1.1

Anomalies Detection During Full Scale Fatigue Test Using Machine Learning Approaches

Efrat Pinhas, Yuval Freed, Yael Buimovich,
Orly Dolev, Gil Noivirt, Yoav Ofir Israel Aerospace Industries

16:05-16:30 WeL2T1.2

Identification of Structural Damage Severity Using an Inverse Wave Analysis

Fatin Kadmany Israel Aerospace Industries
Oded Rabinovitch Technion
Dan Givoli Technion

16:30-16:55 WeL2T1.3

Ti-6AL-4V Additive Manufactured structural item surface quality effect on fatigue strength: An experimental study

Carmel Matias Israel Aerospace Industry
Alex Diskin Israel Aerospace Industry
Oz Golan
Andrey Garkun Technion
Evgeny Strokin Technion
Eduardo Eigenberg Israel Aerospace Industries

16:55-17:20 WeL2T1.4

An Investigation into Curved Beam Flange Efficiency in Thin-Walled Structure

Steve Katzeff Israel Aerospace Industries

17:20-17:45 WeL2T1.5

Design and Experimental Validation of a Fail-Safe Design Arresting Feature Concept for Bonded Structure

David Bardenstein Israel Aerospace Industries
Iddo Kressel Israel Aerospace Industries
N.N.Y. Shemesh Israeli Air Force
Alexander Lukatsky Israel Aerospace Industries

WeL2T2 Hall B

Numerical Methods - I

Chair: **Yoram Kozak** Tel Aviv University

15:40-16:05 WeL2T2.1

Effective turbulent Prandtl number in rough-wall channel flows

Zvi Hantsis, Ugo Piomelli Queen's University

16:05-16:30 WeL2T2.2

Real Gas Modeling for Hypersonic Flight: Simplified and More Detailed Approaches

Eran Arad Technion

16:30-16:55 WeL2T2.3

Analysis Software for 2D Supersonic Inlets Flow Field Evolution

Baruch Karlin
Alina Novikov, Rimon Arieli Technion

16:55-17:20 WeL2T2.4

Numerical Framework for Modeling Fully Resolved and Coupled Combustion Processes of Iron Particles in Air

Moran Ezra, Oren Peles, Yoram Kozak Tel Aviv University

17:20-17:45 WeL2T2.5

Semi-Discrete Numerical Methods Revisited

Sahar Shpitz Technion
Yair Mor-Yossef Rafael
J. Barry Greenberg Technio

WeL2T3 Hall C

GNC - Estimation

Chair: **Liat Peled-Eitan** Rafael

15:40-16:05 WeL2T3.1

A $O(1)$-cost Method for Out-of-Sequence Measurement Integration in the Kalman Filter

Aharon Gal Rafael
Daniel Sigalov Rafael
Yaron Shulamy Shulamy Sol. Ltd.

16:05-16:30 WeL2T3.2

Loosely- vs. Tightly-Coupled Incorporation of Nonlinear Measurements in Tracking Applications

Shlomi Hackmon Rafael
Daniel Sigalov Rafael

16:30-16:55 WeL2T3.3

Distributed Identification of Leader Agents in Semi-Autonomous Networks

Daniel Zelazo Technion
Marco Fabris Technion
Liat Peled-Eitan Rafael

16:55-17:20 WeL2T3.4

Exploring unknown indoor regions by a swarm of energy constrained drones

Ori Rappel Technion
Joseph Ben-Asher Technion

17:20-17:45 WeL2T3.5

Hybrid Learning for Quadrotor Navigation and Sensor Fusion

Itzik Klein University of Haifa

17:45-18:05 WeL2T3.6

Missile threat detection and evasion maneuvers with countermeasures for a low-altitude aircraft

Yaakov Bar-Shalom University of Connecticut

WeL2T4 Hall D

Aerodynamics - II

Chair: **Igal Gluzman** Technion

15:40-16:05 WeL2T4.1

Nose cones drag optimization using data-driven methods

Michael Weidenfeld, Ori Haber Elbit

16:05-16:30 WeL2T4.2

On the Change in Flow Dynamics of a Transonic Open Cavity with Trailing Edge Modifications

Kamil Dylewicz University of Liverpool
Karthick SK Technion
Sudip Das Birla Institute of Technology, Mesra
Franco Auteri Polytechnic University of Milan
Vassilis Theofilis University of Liverpool
Jacob Cohen Technion

16:30-16:55 WeL2T4.3

Experimental Study of Hypersonic Double-cone Flow

Maitri Kshetrimayum Technion
Sanjeev Manjhi National Institute of Technology, Calicut
Viren Menezes Indian Institute of Technology Bombay

16:55-17:20 WeL2T4.4

Wall Modelled Large Eddy Simulation of Hypersonic Transitional Flow over an Axisymmetric Cylinder Flare

Natan Hoffmann, Amareshwara Chamarthi, Steven (Chaim) Frankel Technion

17:20-17:45 WeL2T4.5

Aerodynamic model of horizontal axis wind turbines in a yawed flow

Valentin Ognev, Aviv Rosen Technion

17:45-18:05 WeL2T2.5

Numerical Simulations of an Oscillating Flat Plate under Hypersonic Flow Conditions

Tamar Neter, Alexander Shousterman , Yuval Levy Israeli CFD Center
Lior Poplingher, Daniella Raveh Technion

WeL2T5 Hall E

Student Paper - II

Chair: **Oksana Stalnov** Technion

15:40-16:05 WeL2T5.1

Dynamical Effects of Impinging Wall Curvature on Screech in Under-Expanded Supersonic Jets

Hemanth Chandravamsi Technion
Amareshwara Sainadh Chamarthi Technion
Steven (Chaim) Frankel Technion

16:05-16:30 WeL2T5.2

Combined BOS and CFD study of optical aberrations due to free convection in closed environment

Dema Morad Tel Aviv University
Alex Liberzon Tel Aviv University

16:30-16:55 WeL2T5.3

JERICCO

Michael Malka Technion
May alon Technion
Omer zakar Technion
Alon Binyamin Technion
Oren amber Technion
Yotam Granov Technion
Tom Itzhaki Technion

ThL1T1 Hall A

Combustion

Chair: **Joseph Lefkowitz** Technion

13:30-13:55 ThL1T1.1

Simplified Hypergolic Ignition Model Based on Thermal Diffusion

David Castaneda Technion
Samuel Hassid Technion
Joseph Lefkowitz Technion
Benny Natan Technion

13:55-14:20 ThL1T1.2

Effect of N2 Dilution on Combustion Stability and Emission in a Swirl Stabilized Premixed Combustor operating on mixtures of H2 and CH4

Pawan Ojha Technion
Nicloas Futernick Purdue University
Dan Michaels Technion
Alexander Lazebnikov IEC
Boris Chudnovsky IEC

14:20-14:45 ThL1T1.3

Droplets of an Emulsion of Water in a Biofuel-Conventional Fuel Blend and Their Influence on the Edge of a Spray Flame

Ohad Shalev Eggert Technion
J. Barry Greenberg Technion

14:45-15:10 ThL1T1.4

Liquid and Gaseous Hydrocarbon Fuels in a Scramjet Model Combustor

Joël van der Lee Technion
Dan Michaels Technion
Joseph Lefkowitz Technion

15:10-15:35 ThL1T1.5

Ignition of a Green Hypergolic Hybrid Rocket Propellant under Oxidizer Sprays

Syamantak Nath Technion
Lovely Mallick Technion
Joseph Lefkowitz Technion

ThL1T2 Hall B

Numerical Methods II

Chair: **Pavel Galich** Technion

13:30-13:55 ThL1T2.1

Hybrid 3D-Plane Finite Element Modeling for Elastodynamics

Ron Efrati Technion
Dan Givoli Technion

13:55-14:20 ThL1T2.2

Solutions for the transverse vibration of flexible helicopter blades with elastic boundary conditions using Adomian modified decomposition

Desmond Adair Nazarbayev University

14:20-14:45 ThL1T2.3

Simulation of Coaxial Helicopter Rotor System with 2-way FSI

Dvir Mendler Ansys
Scott Marinus Ansys
Krishnan Sreedevi Ansys
Kelecy Franklin Ansys

14:45-15:10 ThL1T2.4

Development of an Elastic-Plastic Eulerian Solver for High-Speed Deformations

Oren Peles Tel-Aviv University
Moran Ezra Tel-Aviv University
Marcel Martins Alves Tel-Aviv University
Yoram Kozak Tel-Aviv University

15:10-15:35 ThL1T2.5

A New Finite Element Solver for the Material Response Simulation of Ablative Materials

Sahar Shpitz Technion
Yakov Mindelis Israeli CFD Center
Yuval Levy Israeli CFD Center

ThL1T3 Hall C

Wind Tunnel Testing

Chair: **Shlomo Levy** Israel Aerospace Industries

13:30-13:55 ThL1T3.1

Accurate skin friction measurement over 3D surfaces via a simplified photogrammetry procedure in oil-film interferometry

Igal Gluzman Technion
Patrick Gray University of Notre Dame
Thomas Corke University of Notre Dame
Flint Thomas University of Notre Dame

13:55-14:20 ThL1T3.2

Optimized combined motion of sting mounted model in a wind tunnel

Tomer Buium Israel Aerospace Industries

14:20-14:45 ThL1T3.3

Reynolds Number Effects on a Cone-Cavity Model in a Hypersonic Flow

Soumya Ranjan Nanda Technion
Karthick SK Technion
Jacob Cohen Technion

14:45-15:10 ThL1T3.5

Design and Characterisation of Dual Purpose Anechoic Wind Tunnel at the Technion

Oksana Stalnov Technion
Gal Doron Technion

ThL1T4 Hall D

Fluid Mechanics - I

Chair: **Yuval Dagan** Technion

13:30-13:55 ThL1T4.1

Cavitation at Negative Pressures: Preliminary Results

Orr Avni Technion
Yuval Dagan Technion
Eran Sher Technion

13:55-14:20 ThL1T4.2

Enhancement of Convective Mixing via Particles

Alex Alvisi Technion
Ian Jacobi Technion

14:20-14:45 ThL1T4.3

Particle-Laden Impinging Jets

Amir Loyevsky Rafael
Yuval Dagan Technion

14:45-15:10 ThL1T4.4

Computational investigation of the hydrodynamic stability of particle-laden channel flows

Ajay Dhankarghare Technion
Yuval Dagan Technion

15:10-15:35 ThL1T4.5

Modeling and experimental characterization of aviation fuel cavitation in the radial flow between two parallel disks

Igal Gluzman Technion
Anthony Pelster University of Notre Dame
Flint Thomas University of Notre Dame

ThL1T5 Hall E

Materials

Chair: **Itamar Gutman** Rafael

13:30-13:55 ThL1T5.1

Stochastic Crack Growth - Random Process Approach

Giora Maymon Rafael

13:55-14:20 ThL1T5.2

Customizable p4gm Symmetry-Based Phononic Crystals for Engineering Solutions

Ilaie Nadejde, Pavel Galich Technion

14:20-14:45 ThL1T5.3

Thermal and Mechanical Properties of C/C-MeC (Me: Si, Si-Ti, Si-B, Si-Zr (Ceramic Matrix Composites (CMC)

Shmuel Hayun, Raz Najmi, Jonatan Mottye, Chen Assulin, Sapir Yail, Nachum Frage Ben Gurion University of the Negev

14:45-15:10 ThL1T5.4

Machine learning based identification of hyper-elastic material properties from bulge test

Ariel Drachinsky, Shahar Yehezkel, Yoav Lev, Avihay Levi, Jonathan Fuchs Rafael

15:10-15:35 ThL1T5.5

Multi-phase PHFGMC micromechanical models for C/C-SiC based Ceramic Matrix Composites

Chen Dahan-Sharhabani Tel Aviv University
Royi Padan Tel Aviv University
Omri Regev Rafael
Rami Haj-Ali Tal Aviv University

ThL1T6 Hall F

GNC - Optimal Control

Chair: **Joseph Z. Ben-Asher** Technion

13:30-13:55 ThL1T6.1

Hypersonic Boost-Glide Vehicle (HGV) Flight Optimization

Joseph Z. Ben-Asher Technion
Michael Wetzler WALES Ltd.
Dror Cohen WALES Ltd.

13:55-14:20 ThL1T6.2

Sum of Squares Polynomial Approximate Dynamic Programming for the Ergodic Problem

Gyorgy Hexner Rafael

14:20-14:45 ThL1T6.3

On the Implementation of a Variable Time Transformation Method for Optimal Control Problems with Vanishing Constraints

Sahar Shachar Technion
Joseph Ben-Asher Technion
Johannes Diepolder Technical University of Munich

14:45-15:10 ThL1T6.4

Performance and Control of Multirotors Formation with Sling Load in an Urban Environment

Amit Weinreb Technion
Moshe Idan Technion
Gil Iosilevskii Technion

15:10-15:35 ThL1T6.5

Optimal Linear Quadratic Powered Descent With An Intermediate Point

Or Nataf Technion
Vitaly Shaferman Technion

ThL1T7 Hall G

Industrial Projects - Platform Architecture and Subsystems

Chair: Eliezer Trinczer Technion

13:30-13:55 ThL1T7.1

Center for Security science and Technology

Eliezer Trinczer Technion

13:55-14:20 ThL1T7.2

Gyroscopic Effect on Flettner-powered VTOLs

Satoki Shimamune St John's College, University of Cambridge

14:20-14:45 ThL1T7.3

Robust Attitude and Vibration Control of a Flexible Satellite

Jose Jorge Carreño Zagarra Universidad Industrial de Santander
Diana Katheryn Poveda Universidad Industrial de Santander

14:45-15:10 ThL1T7.4

Unintended or Inappropriate Rudder Usage – Rudder Reversal: an Example of Empennage Loads Analysis on a Mid-Size Business Jet Using the New Proposed Regulation

Michael Bronstein Israel Aerospace Industries

15:10-15:35 ThL1T7.5

Transport Aircraft Environmental Control System Cabin Air Quality Improvement

Ilan Berlowitz IBAero Engineering

ThL1T8 Hall H

Industrial Projects - Measurements and Sensing

Chair: **Dana Porrat** Israel Aerospace Industries

13:30-13:55 ThL1T8.1

Radiometric measurements of a small jet engine and its plume

Ohad Ophir IARD sensing solutions

13:55-14:20 ThL1T8.2

Fire Prediction and Detection from Satellite Imagery

Dana Porrat Israel Aerospace Industries
Revital Huber-Shalem Israel Aerospace Industries
Tal Feingersh Israel Aerospace Industries

14:20-14:45 ThL1T8.3

Measurements of Two-Phase Plumes and Analysis of Gas Dynamic and Radiation Phenomena

Inbar Greenberg IARD sensing solutions ltd.
Adam Devir IARD sensing solutions ltd.
Alexander Lessin IARD sensing solutions ltd.
Ilan Mendelewicz IARD sensing solutions ltd.
Elie Levy LinkCom

14:45-15:10 ThL1T8.4

Trial-Demonstration of A Patent In Multi-Meter Navigation

Shmuel Boyarski Elbit

ThL2T1 Hall A

Propulsion

Chair: **Dan Michaels** Technion

16:00-16:25 ThL2T1.1

Optimization of Hybrid Rocket Motor with a Volume-Limited Fuel Grain

Michael Presman Technion
Alon Gany Technion

16:25-16:50 ThL2T1.2

Experimental Investigation of a Hybrid Combustor with a Helical Port

Sagi Dinisman Technion
Nachum Eisen Israel Aerospace Industry
Alon Gany Technion

16:50-17:15 ThL2T1.3

Green Hypergolic Bipropellant Rocket Motors

Daniel Komornik Technion
Roy Sagi Technion
Benny Natan Technion
Dov Hasan Technion
Zohar Schlagman NewRocket

17:15-17:40 ThL2T1.4

Ceramic and Metal Additive Manufacturing of Monolithic Rotors Aerodynamic Performance Study for Small Scale Turbomachines

Lukas Badum Technion
Boris Leizeronok Technion
Beni Cukurel Technion

17:40-18:05 ThL2T1.5

Single-Step Additive Manufacturing of Pre-Assembled Gas Turbine Architectures Without the Need for Supports

Michael Palman Technion
Yohai Abraham Technion
Ronen Ben Horin PTC
Beni Cukurel Technion

ThL2T2 Hall B

Space Sciences

Chair: **Vitaly Shaferman** Technion

16:00-16:25 ThL2T2.1

Orbital Elements Control of Satellites Using Time-Varying Sliding Mode Control

David Mishne Technion

16:25-16:50 ThL2T2.2

Optical Emission Spectroscopy for Very Low Power Hall Effect Thrusters

Omri Hamo Technion
Joseph Lefkowitz Technion
Dan Lev Rafael
Igal Kronhaus Technion

16:50-17:15 ThL2T2.3

Spacecraft Rendezvous with Constant Thrust

Pini Gurfil Technion

17:15-17:40 ThL2T2.4

Single-Frame Attitude Determination from BGUSAT Earth SWIR Imaging

Daniel Choukroun Ben-Gurion University of the Negev
Ofir Nisany Ben Gurion University of the Negev
Alexander Shiryaev Technion
Ofer Hadar Ben Gurion University of the Negev
Lipaz Aspir Ben Gurion University of the Negev
Shimrit Maman Ben Gurion University of the Negev
Dan Blumberg Ben Gurion University of the Negev

17:40-18:05	ThL2T2.5

Efficient numerical integration for perturbed gravitational fields

Vladimir Martinusi	Technion

18:05-18:30	ThL2T2.6

Fluidic Shaping of optical components in microgravity: from Parabolic Flights to the International Space Station

Omer Luria	Technion
Mor Elgarisi	Technion
Valeri Frumkin	MIT
Alexey Razin	Technion
Khaled Gommed	Technion
Ericson, Jonathan	Technion
Widerker, Daniel	Technion
Israel Gabay	Technion
Sivan Perl	Technion
Ruslan Belikov	NASA Ames Research Center
Jay Bookbinder	NASA Ames Research Center
Edward Balaban	NASA Ames Research Center
Moran Bercovici	Technion

ThL2T3 Hall C

Aeroelasticity and Structural Design

Chair: **Michael Weidenfeld** Elbit

16:00-16:25 ThL2T3.1

Analytic Assessment of Aeroservoelastic Effects on F-16 Flutter Characteristics

Dor Naftaly Israeli Air Force
Michael Iovnovich Israeli Air Force

16:25-16:50 ThL2T3.2

Preliminary Validation of High-Speed Fluid-Structure Interaction of a Compliant Panel

Lior Poplingher Technion
Daniella Raveh Technion
Alex Shousterman Israeli CFD Center
Yuval Levy Israeli CFD Center

16:50-17:15 ThL2T3.3

Stiffness Optimization of Isotropic Parts in a Military Turbo-Propeller Aircraft by Topology optimization method

Ori Krauthammer Israeli Air Force
Itay Farajun Technion
Roei Cohen Israeli Air Force
Erez Ezer Israeli Air Force

17:15-17:40 ThL2T3.4

Optimized design and structural considerations for low cost, highly automated composite wing production

Adam Sawday Israel Aerospace Industries
David Bardenstein Israel Aerospace Industries
Zvi Karuchero Israel Aerospace Industries
Yaron Nagar Israel Aerospace Industries
Yaniv Yurovich Israel Aerospace Industries
Shay Shoam Israel Aerospace Industries
Arnold Nathan Israel Aerospace Industries

ThL2T4 Hall D

Fluid Mechanics - II

Chair: **Ian Jacobi** Technion

16:00-16:25 ThL2T4.1

Axisymmetric and flapping global instabilities of M=1 jets

Michael Karp Technion
Philipp Hack Stanford University

16:25-16:50 ThL2T4.2

Bispectral Study of Attached Eddy Model in Turbulent Wall-bounded Flows

Guangyao Cui Technion
Ian Jacobi Technion

16:50-17:15 ThL2T4.3

Coherent Structures in the Wake of an Surface-Actuated Cylinder

Alexey Zhelebovskiy Technion
Ian Jacobi Technion

17:15-17:40 ThL2T4.4

Experimental Investigation of the Near-Field of Coaxial Jets

David Hasin Technion
Yoni Reingewirtz Technion
Sudharson Murugan Technion
Rene van Hout Technion

17:40-18:05 ThL2T4.5

A Numerical study of Shock Wave Reflection from Rough Surface Wedges

Dan Igra Rafael

ThL2T5 Hall E

Aerodynamics - III

Chair: **David Greenblatt** Technion

16:00-16:25 ThL2T5.1

Why Momentum Input Should Not Characterize Active Flow Control

Israel Wygnanski University of Arizona

16:25-16:50 ThL2T5.2

Investigating the Effect of Acoustic Flow Control on Humps

Acar Celik Technion
Abhijit Mitra Technion
Tapish Agarwal Technion
Ian Jacobi Technion
Beni Cukurel Technion

16:50-17:15 ThL2T5.3

Flight Experiments on a Small UAV with Plasma Actuators

Mordechai Garcia Technion
Dor Polonsky Technion
Yoav Gichon Technion
David Greenblatt Technion

17:15-17:40 ThL2T5.4

Using the Wave Equation for Actuator Surface Modelling

Natalya Rogozhan Technion
Aviv Rosen Technion

17:40-18:05 ThL2T5.5

Performance Projections for a Helicopter Model with Plasma Actuators

Dor Polonsky Technion
Oksana Stalnov Technion
David Greenblatt Technion

ThL2T6 Hall F

GNC - Control and Autonomous Systems

Chair: **Liraz Mudrik** Technion

16:00-16:25 ThL2T6.1

Accurate Transportation Nonlinear Control for Flexible Cable-Suspended Load Carried by a Multi-Copter

Amit Katav Ben-Gurion University of the Negev
Amir Shapiro Ben-Gurion University of the Negev

16:25-16:50 ThL2T6.2

Terrain Aided Multirotor Recovery Using Laser Range-Finders

Stanislav Shougaev Technion
Moshe Idan Technion

16:50-17:15 ThL2T6.3

A Two-Stage Collision Avoidance Algorithm for Unmanned Aviation Systems

Boris Resnick Flyvercity
Nikolay Baranov Flivercity
Andrey Potapov Flivercity

17:15-17:40 ThL2T6.4

Examining Propagator's Integration Methods Towards the Development of Autonomous Situational Awareness

Elad Denenberg Braude Academic College of Engineering

17:40-18:05 ThL2T6.5

Biased Proportional Navigation with Decaying Error for 3D Impact Angle Control

Raziye Tekin Roketsan Missiles Inc.
Koray Erer Roketsan Missiles Inc.

ThL2T7 Hall G

Industrial Projects - System Operation

Chair: Meir Cohen Israel Aerospace Industries

16:00-16:25 ThL2T7.1

The Way to Optimal Preventive Maintenance

Barak Shpilman Israel Aerospace Industries

16:25-16:50 ThL2T7.2

Investigation of failures arising from environmental conditions and prevention of future damages

Meir Cohen Israel Aerospace Industries

16:50-17:15 ThL2T7.3

A New Method for Assessing the Influence of the Human Factor in Safety System Analysis

Yair Jaimovich Israel Aerospace Industries

17:15-17:40 ThL2T7.4

Cyber Security Threats That Impact to Safety

David Rebibo Israel Aerospace Industries

17:40-18:05 ThL2T7.5

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Efraim Feiglin Israel Aerospace Industries