

R E S U M E

Full name: **Beni Cukurel**
Identity No.: 337627251
Date and place of birth: 15/01/1984; Izmir, Turkey
Marital status: Married
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ACADEMIC DEGREES

- Ph.D. 2012, von Karman Institute for Fluid Dynamics
 Purdue University, School of Mechanical Engineering
Thesis: “Conjugate Heat Transfer Investigation of a Fixed Rib-Roughened Cooling Passage” *Advisor: Prof. Tony Arts, Major Professor: Prof. Anil Bajaj*
- M.S.M.E 2008, Purdue University, School of Mechanical Engineering
Thesis: “Particle Image Velocimetry Investigation of a High Speed Centrifugal Compressor” *Co-Advisors: Prof. Patrick Lawless, Prof. Sanford Fleeter*
- B.S.M.E 2005, Purdue University, School of Mechanical Engineering
Thesis: “A Study on Highly Potential Forcing Functions Triggering Dynamic Stall” *Advisor: Prof. Patrick Lawless*

ACADEMIC APPOINTMENTS

- 2019 - Present Associate Professor, Technion- Israel Institute of Technology, Faculty of Aerospace Engineering.
- 2017 - Present Head of the L. Shirley Tark Turbo & Jet Engine Research Laboratories.
- 2015 - 2019 Senior Lecturer, Technion- Israel Institute of Technology, Faculty of Aerospace Engineering.
- 2012 - 2015 Lecturer, Technion- Israel Institute of Technology, Faculty of Aerospace Engineering.

PROFESSIONAL EXPERIENCE

- 2002-2003 Engineer, Robert Bosch Corporation, Albion, Indiana

RESEARCH INTERESTS

- *Basic and Applied Heat Transfer:* Thermo-Acoustic Interaction, Heat Transfer Modelling, Heat Transfer Enhancement, Thermal Management.
- *Measurement Technique Development:* Infrared Thermography, Liquid Crystal Thermometry, Particle Image Velocimetry, Hotwire Anemometry.
- *Gas Turbine Component Analysis:* Turbine Cooling and External Flows, Aero-thermal Design of Gas Turbine Hot Gas Section, Axial and Radial Compressor/Turbine Aerodynamics.

TEACHING EXPERIENCE

- *AAE 084401 Jet Engines I*
Spring 2016, Spring 2017, Spring 2018, Spring 2019,
Spring 2020, Spring 2021, Spring 2022.
- *AAE 084154 Experimental Methods in Aerospace Engineering*
Fall 2013, Spring 2014, Fall 2014, Summer 2015,
Fall 2015, Summer 2016, Fall 2016, Spring 2018,
Summer 2018, Fall 2018, Summer 2019, Summer 2020,
Fall 2020.
- *AAE 085801 Seminar Course*
Spring 2013, Fall 2013, Fall 2014.
- *AAE 085405 Propulsion Laboratory*
Fall 2020, Fall 2021.
- *AAE 086480 Aero-thermal Fundamentals of Turbomachinery*
Spring 2014, Spring 2015, Spring 2016, Fall 2016, Fall
2017, Fall 2019, Fall 2021.

DEPARTMENTAL ACTIVITIES

- *Vice Dean for Research,*
Aerospace Department, 2020-2022.
- *Academic Development Committee,*
Aerospace Department, Chairman 2020-2022.
- *Committee for Curriculum Revision,*
Aerospace Department, *Member* 2013 – 2022.
- *Safety Committee,*
Aerospace Faculty, Chairman 2015 – 2019.
Aerospace Department, Member 2019 – 2022.
- *Preparatory Advisory Committee,*
Aerospace Department, *Member* 2013 – 2022.
- *Responsible for Department Workshop,*
Aerospace Department, 2020-2022.
- *Award Committee,*
Aerospace Department, Chairman 2020.
- *Weekly Departmental Seminar Organizer,*
Aerospace Department, 2015 – 2016.

UNIVERSITY ACTIVITIES

- 2022 – Present Technion Sustainability Program, Member and
Department Representative
- 2021 – 2022 Technion Campus Leadership Program, Participant

- 2014 – Present Grand Technion Energy Program, Member and Department Representative

PUBLIC PROFESSIONAL ACTIVITIES

- 2018 – 2021 Associate Editor in Measurement by Elsevier Journal of International Measurement Confederation, IF 3.9.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- 2014 - Present Member, European Turbomachinery Society, representative of Israel
- 2013 - Present Elected to International Gas Turbine Institute Heat Transfer Committee
- 2013 - Present Elected to ASME Heat Transfer K-14 Gas Turbine Committee
- 2007 - Present Member, American Institute of Aeronautics and Astronautics
- 2002 - Present Member, American Society of Mechanical Engineers

HONORS

- 06/2022 Crown Vanguard Award in Science and Technology for Mid-Career Faculty with World-Changing Breakthrough Potential
- 06/2022 Hilda and Hershel Rich Technion Innovation Award
- 06/2021 Best Paper Award from Heat Transfer Committee of ASME-IGTI Turbomachinery Technical Conference & Exposition 2020
- 04/2018 Uzi and Michal Halevy Award for Innovative Applied Engineering in Technion-IIT
- 03/2017 Henri Gutwirth Prize Promoting Excellence in Israeli Research Fields
- 02/2015 Meir Hanin Prize for Outstanding Junior Faculty Member in Israeli Aerospace Sciences

PRIZE FUNDS

- 2020 Jordan and Irene Tark Aerospace Research Fund, Ultra Micro Gas Turbine Generators
- 2019 Victoria and Robert Polak Fund for Applied Research, Development of Novel Acoustic Cancellation Technology for Aircraft Engines

- 2016 Melvyn and Carolyn Miller Grant for Innovation, Acoustic Resonance Enhanced Heat Exchangers

RECOGNITION IN NEWS

- Tiny, Long-Range Turbine Power for Applications Ranging from Biotechnology to Unmanned Aircraft, Selected Research Topic for Technion President's Report and Technion Magazine, 12/2021.
- Drone Engine that Moves the World: from Palm of Your Hand to Unexpected Distances, N12, 27/09/2021.
- Exciting Collaboration between Reali High School and Technion in 3D Printing of Turbine based Emergency Ventilators during COVID Pandemic, News Haifa Krayot, 08/04/2020.
- Give Me Silence, Active Turbomachinery Noise Cancellation with Thermo-Acoustic Devices, Magazine of Technion Aerospace Department, 15/03/2020
- Youngest Faculty Member in Israel is a 29 year old from Technion, Israel Hayom, 16/10/2013

STUDENTS AND STAFF

Completed Theses

Technion – IIT

Ph.D. Students

- 2020 Iliya Romm "Multi-Spectral Infrared Thermography of Unknown-Emissivity Targets"
- 2019 Simon Julius, "Conduction and Forced Convection under Periodic Forcing Conditions"

M.Sc. Students

- 2022 Yonit Zaslavsky, "High-Speed Hot-Wire Anemometry for Independent Characterization of Instantaneous Flow Quantities and Angles in Turbomachines"
- 2022 Burak Gokoz, "Scalar Mixing and Turbulent Structure Measurements in a Model Combustor", Co-advisor: Ian Jacobi
- 2022 Nethanel Peleg, "Economic Dispatch for a Network of Micro-Gas Turbines", Co-advisor: Dan Zelazo
- 2022 Dina Loktev, "Study of Deflagration Regime along the Hugoniot Curve", Co-advisor: Eran Sher

- 2021 Boris Leizeronok, “Guidelines for Higher Efficiency Thermo-Acoustic Emitters Based on Experimentally Validated Analytical Model of Periodically Joule Heated Multi-Layer Films and Application of Thermophones to Vibro-Acoustic Noise Cancellation in Varying Gaseous Media”, Co-advisor: Daniel Zelazo
- 2021 Yair Lange, “Reduced Order Modeling and Design Optimization of Effusion Cooling in Turbine Blades”
- 2020 Irena Moshkovich Makrenko, “Study of the physical feasibility and stability of Chapman-Jouguet points in a homogeneous combustible mixture”, Co-advisor: Eran Sher
- 2019 Michael Palman, “Development of Adaptive Cycle Micro-Turbofan Engine for UAS Applications”
- 2019 Idan Chazan, “Thermodynamic and Experimental Demonstration of Inverted Brayton Cycle for Heat Recovery Applications”
- 2019 Kobi Kadosh, “Micro-Turbojet to Adaptive Cycle Turbofan Conversion through a Variable Thermodynamic Cycle”
- 2018 Efim Yablochkin, “High-speed Hot-wire Anemometry towards Independent Characterization of Instantaneous Flow Quantities with Minimal Calibration”
- 2018 Matan Jacoby, “Infrared Radiometry of a Premixed CO₂-Air Jet towards Gas Temperature Reconstruction”
- 2018 Eli Yakirevich, “Design of Continuous Closed-Loop Transonic Linear Cascade for Aero-Thermal Performance Studies in Micro-Turbomachinery”
- 2016 Oleg Isaev “Thermodynamic Simulation of Continuous Closed Loop Heated Micro-Turbine Test Facility”

M.Eng. Students

- 2018 Oren Saar, “Cooling system for Continuous Closed Loop Heated Micro-Turbine Test Facility”

Exchange M.Sc. Students †

- 2021 Acar Celik, “Numerical Investigation of Inverse Magnus Effect on a Circular Cylinder by Controlling Azimuthal Circulation Distribution”, Izmir Katip Celebi University (Supervisor: Sercan Acarer)

† Although the exchange students officially received their degrees from the respective home universities, the thesis research in its entirety was conducted in Technion-IIT. This is evidenced by the resulting publications that include only Technion authorship and affiliation.

- 2018 Maximilian Stratmann, “Aero-thermal Investigation of Acoustic Resonance Driven Re-attaching Flow Modulation”, RWTH-Aachen University (Supervisor: Wolfgang Schröder).
- 2017 Lukas Badum, “Improving Cycle Efficiency of Energy Production from Biomass using an Inverted Brayton Cycle”, University of Stuttgart, (Supervisor: Damian Vogt)
- 2014 Claudio Selcan, “Boundary Layer Heat Transfer Investigation of Acoustically Excited Flow Over a Fence”, RWTH-Aachen University (Supervisor: Reinhold Kneer)

Theses in Progress

Ph.D. Students

- 2021 – Present Acar Celik, “Embedded Flow Control for High Work/Low Reynolds Number Turbines” (Exp. Grad. 2024) Co-advisor: Ian Jacobi
- 2020 – Present Michael Palman, “Optimization of Micro Gas Turbines towards Additive Manufacturing with Minimal Assembly” (Exp. Grad. 2023) Co-advisor: Tom Verstraete
- 2019 – Present Lukas Badum “Development of an Additive Manufactured Micro Gas Turbine with 300W Electric Power Output” (Exp. Grad. 2022)
- 2018 – Present Shani Eitan “Measurement of Coating Thermal Properties via Induction Phase Radiometry” (Exp. Grad. 2023)

M.Sc. Students

- 2022 – Present Arpan Sow, “Aero-thermo-acoustic Performance Assessment of a Transonic Fan” (Exp. Grad. 2024)
- 2022 – Present Yakov Paltiel, “Experimental Quantification and Prediction of Micro-turbojet Engine Performance Degradation Associated with Non-uniform Boundary Conditions Imposed by Inlet Distortions” (Exp. Grad. 2024)
- 2021 – Present Muans Omari, “Heat Transfer of Actuated Co-Axial Impinging Jets” (Exp. Grad. 2023) Co-advisor: Rene van Hout

Exchange M.Sc. Students

- 2022 – Present Michail Tsinoglou, “Application of Quantitative Weak Lens Schlieren to Transonic Turbine Cascade”, Aristotle University of Thessaloniki (Exp. Grad. 2023)
- 2022 – Present Dionysis Chala, “Application of Pressure Sensitive Paint to Cooling Effectiveness Measurements in a Transonic Turbine Cascade”, Aristotle University of Thessaloniki (Exp. Grad. 2023)

- 2022 – Present Felix Schirrecker, “Experimental Performance Assessment of Micro-Turbojet to Micro-Turbofan Conversion”, University of Stuttgart (Exp. Grad. 2023)

Sponsored Long-Term Visitors and Post-Doctoral Associates

- 2021 – Present Pranay Biswas
- 2020 – Present Abhijit Mitra
- 2016 – Present Tapish Agarwal
- 2020 – 2021 Iliya Romm
- 2019 – 2020 Simon Julius
- 2018 – 2020 Karthick Sengunthapuram Kandasamy
- 2018 Samuel Gendebien

Current Research Team

Research Staff

- 2021- Present Esther Goldberg Polonsky, Administrator
- 2020- Present Gabriel Shamai, CNC Technician
- 2020- Present Yohai Abraham, Design Engineer
- 2019- Present Vyacheslav Papshev, Materials Scientist
- 2016- Present Salman Nbwani, Lead Laboratory Technician
- 2016- Present Alex Kleiman, Project Engineer
- 2015- Present Ron Miezner, Lead Design Engineer
- 2015- Present Boris Leizeronok, Lab Engineer

B.Sc. Students

- 2022- Present Ofir Mekayten
- 2022- Present Ilan Ancelseritcioglu
- 2021- Present Temima Rachbuch
- 2021- Present Lucas Smejoff
- 2021- Present Michal Amar

Prior Contributors

Staff

- 2019- 2021 David Linsky, Design Engineer
- 2019- 2021 Liat Sivan, Administrator
- 2020 Michael Palman, Research Engineer
- 2019- 2020 Alexander Polyak, Laboratory Technician
- 2018 Or Lazarovich, Design Engineer
- 2018 Vincent Ray Black, Laboratory Technician Assistant
- 2018 Noah Paul, Research Assistant
- 2017- 2018 Gera Kesselman, Project Engineer
- 2014- 2016 Iliya Romm, Research Fellow
- 2013- 2016 Michael Lev, Research Fellow
- 2013- 2015 Judah Shashank, Lab Engineer

B.Sc. Students

- 2021 Liraz Dvorkind
- 2021 Ofer Mermelstein
- 2020- 2021 Tal Beit Halevy
- 2020- 2021 Marom Navi
- 2020- 2021 Yoav Shumacher
- 2020- 2021 Guy Wilner
- 2020- 2021 Ron Lavan
- 2020 Benjamin Khazanov
- 2020 Yaniv Yoles
- 2019- 2021 Pavel Kovalyov
- 2019 Evgeny German
- 2019 Daniel Isakov
- 2018- 2020 Rotem BenDavid
- 2018- 2019 Idan Eizenberg
- 2018- 2019 Ofek Oiknine
- 2017- 2018 Alon Maor
- 2017- 2018 Yedidya Cohen
- 2015- 2017 Michael Palman
- 2015- 2017 Ronald Gold
- 2015- 2016 Idan Chazan

Interns

- 2020 Nicolas Martinez Cruces, Purdue University, USA
- 2019 Ludovico Nista, von Karman Institute, Belgium
- 2019 Hannah Nevill, Imperial College London, UK
- 2019 Doreen Chin, Massachusetts Institute of Technology, USA
- 2018 Julian Hearter, University of Stuttgart, Germany
- 2018 Hamish Beck, Imperial College London, UK
- 2018 Lukas Engelbert, Imperial College London, UK
- 2017 Vera Liebmann, TU Dresden, Germany
- 2016 Miguel Freitas Dias, Delft Univ. of Tech., Netherlands
- 2015- 2016 Johannes Rist, TU Munich, Germany
- 2015 Julia Brockschmidt, TU Clausthal, Germany

Prior Advisory Activities

Research Masters' (Diploma Course) Advisor - Von Karman Institute for Fluid Dynamics

- 2011 Sercan Acarer, "Hotwire Anemometry in Two Dimensional High Speed Flow", Von Karman Institute for Fluid Dynamics. (Supervisor: Tony Arts)
- 2010 Manfredi Scialanga, "Conjugate Heat Transfer Investigation by Transient Thermography In Internal Cooling Channels", Von Karman Institute for Fluid Dynamics. (Supervisor: Tony Arts)

Masters' Advisor - Von Karman Institute for Fluid Dynamics

- 2011 José Pedro García Galache, "Heat Transfer Evaluation in Turbomachinery Applications Through Potential-Based Transformation", Universitat de València. (Supervisor: Guillermo Paniagua)
- 2010 Matteo Pascotto, "Convective Heat Transfer Investigation in a Rib-Roughened Channel with Film Cooling Holes", Università degli studi di Udine. (Supervisor: Tony Arts)
- 2009 Phillipe Halovet, "Transfert de chaleur conjugué dans un canal lisse de refroidissement d'aube de turbine", Université Catholique De Louvain. (Supervisor: Tony Arts)
- 2008 Emilaine Fizaine, "Optimalisation des Paramètres de Contrôle pour un Anémomètre a Fil-Chaud", Ecole Royale Militaire, Marie-Louise Henin. (Supervisor: Tony Arts)

Bachelors' Advisor - Von Karman Institute for Fluid Dynamics

- 2011 Claudio Selcan, "Convective Heat Transfer Investigation of a Fixed Rib-Roughened Cooling Channel", Ruhr-Universitaet Bochum. (Supervisor: Tony Arts)

INTERNATIONAL RESEARCH GRANTS (\$6.5M)

Competitive Funding (\$2.7M)

- 2021-2025 National Science Foundation – Binational Science Foundation (NSF-BSF) Joint Funding Research Grants 2020698, (500,000 USD), Investigation of Multi-Scale Turbulence Coupling by Goal-Oriented Adaptive Surface Modulation, Co-PI: Assoc. Prof. I. Jacoby.
- 2020-2025 Starting Grant, European Research Council, Project 853096, (2,000,000 EUR), Thermophone - Novel Heat Transfer based Approach to Global Tonal Noise Cancellation in Aviation.

Non-Competitive Civilian-Impact Funding (\$2.1M)

- 2022-2023 Minerva Center Internationalization Project, Max Planck Society, (20,000 EUR), Scholarships and Dissemination Activities of Micro Turbine Powered Energy Systems
- 2021-2027 Minerva Research Center, Max Planck Society, Contract AZ5746940764, (900,000 EUR), Extension of Minerva Center for Micro Turbine Powered Energy Systems.
- 2017-2018 Minerva Center Equipment Grant, Max Planck Society, (50,000 EUR), Micro Gas Turbine Driven CHP Kit. Co-PI: Prof. Y. Levy.
- 2014-2020 Minerva Research Center, Max Planck Society, Contract AZ5746940764, (900,000 EUR), Micro Turbine Powered Energy Systems. Co-PIs: Prof. Y. Levy; Prof. E. Sher.

Non-Competitive Defense-Impact Funding (\$1.7M)

- 2022-2023 Army Combat Capabilities Development Command – Basic and Applied Scientific Research, U.S. Office of Army Research, Contract W911NF-22-2-0192, (208,845 USD), System Demonstration of Micro Gas Turbine with 300W Electric Power Output.
- 2021-2024 Science for Peace and Security Program, North Atlantic Treaty Organization (NATO), Contract G5939, (450,000 EUR), Additively Printed Engine. Co-PIs: Dr. Bayindir Saracoglu, Assoc. Prof. S. Acarer.
- 2020-2022 Army Combat Capabilities Development Command – Basic and Applied Scientific Research, U.S. Office of Army Research, Contract W911NF-20-2-0156, (225,000 USD), Development of an Additive Manufactured Micro Gas Turbine with 300W Electric Power Output.
- 2017-2021 Navy and Marine Corps Science and Technology – Basic and Applied Scientific Research, U.S. Office of Naval Research, Contract N62909-17-1-2176, (360,000 USD), Adaptive Micro Turbofan Engine Development.

- 2016-2019 Science for Peace and Security Program, North Atlantic Treaty Organization (NATO), Contract G5202, (360,000 EUR), Versatile UAV Engine Development. Co-PIs: Assoc. Prof. G. Paniagua; Asst. Prof. S. Acarer.

NATIONAL RESEARCH GRANTS (\$7.0M)

Competitive Funding (\$1.2M)

- 2019-2023 Individual Research Grant, Israel Science Foundation, Contract 999/19, (1,120,000 NIS), Sound Generation by Periodic Joule Heating and Conduction Beyond the Fourier Law.
- 2017-2020 Regular Grant, Binational Science Foundation, Contract 2016358, (155,000 USD), Energetic Modulation of the Thermal Boundary Layer Evolution. Co-PI: Assoc. Prof. G. Paniagua.
- 2015-2019 Individual Research Grant, Israel Science Foundation, Contract 1752/15, (1,120,000 NIS), Forced Convection Enhancement through Fluid Resonance Excitation in Rib-Roughened Channels of Heat Exchangers.
- 2015-2017 New-Faculty Equipment Grant, Israel Science Foundation, Contract 1990/15, (1,100,000 NIS), Establishment of Gas Turbine and Heat Transfer Laboratories.

Non-Competitive Civilian-Impact Funding (\$2.0M)

- 2022-2023 Turbogen CHP, Contract T2310, (350,000 NIS), Performance Assessment of Methane-Fueled Gas Turbine.
- 2022-2023 Turbogen CHP, Contract T2254, (750,000 NIS), Performance Assessment of Externally Fired Gas Turbine Combustor with Hydrogen Blended Fuels. Co-PI: Asst. Prof. Joe Lefkowitz
- 2022-2025 Startups in Energy, Chief Scientist Office, Israeli Ministry of Energy, Contract 22111063, (675,000 NIS), Porous Inert Media Combustors Towards Distributed Combined Heat and Power Generation Using Zero Carbon Fuels. Co-PI: Asst. Prof. Joe Lefkowitz
- 2022-2023 Bet Shemesh Engines, Contract 2221801325, (100,000 NIS), Performance Assessment of Combustor Sector.
- 2021-2022 Technion Additive Manufacturing Center, Equipment Grant CFP-2021, (27,000 USD), Metal and Ceramic Injection Molding via FDM 3DPrinter and Post-processing Furnaces

- 2020-2021 The Bernard M. Gordon Center for Systems Engineering at the Technion, Contract 1019200, (25,000 USD), Development of an Additive Manufactured Micro Gas Turbine with 300W Electric Power Output.
- 2020-2024 Pazi Foundation, Israel Atomic Energy Commission, Contract 187-2020, (1,400,000 NIS), Heat transfer enhancement by pulsating co-axial impinging jets. Co-PIs: Assoc. Prof. R. Van-Hout, Dr. M. Raizner
- 2020-2021 Meimad Nofar Grant in Magnet Directorate, Israel Innovation Authority, Israeli Ministry of Industry, Trade & Labor, Contract 68431, (550,000 NIS), Ultra Micro Gas Turbine for Drones.
- 2019-2020 The Bernard M. Gordon Center for Systems Engineering at the Technion, Contract 1017930, (30,000 USD), Adaptive Cycle Micro Turbine Engine – Component Level System Integration.
- 2019-2021 Startups in Energy, Chief Scientist Office, Israeli Ministry of Energy, Contract 20180805, (600,000 NIS), Optimal Economic Dispatch of CHP Micro Gas Turbines in Smart Grids. Co-PI: Assoc. Prof. D. Zelazo.
- 2018-2019 Nofar Grant in Magnet Directorate, Israel Innovation Authority, Israeli Ministry of Industry, Trade & Labor, Contract 63882, (550,000 NIS), Development of Novel Acoustic Cancellation Technology for Aircraft Engines.
- 2018-2021 Call for Fuel Cell and Energy Storage, Chief Scientist Office, Israeli Ministry of Energy, Contract 21711029, (450,000 NIS), CHP Hybridization of Solid Oxide Fuel Cell via Inverted Brayton Cycle.
- 2016-2018 Kamin Grant in Magnet Directorate, Chief Scientist Office, Israeli Ministry of Industry, Trade & Labor, Contracts 57685 and 61229, (744,000 NIS), Improving Heat Exchanger Performance Through Standing Acoustic Waves.
- 2015-2016 Nevet Call for Smart Grids, Grand Technion Energy Program (GTEP), Contract 1013145, (40,000 USD), Optimal Operation of the Smart-Grid Equipped with a Distributed Network of Micro-Gas Turbines. Co-PI: Asst. Prof. D. Zelazo.

Non-Competitive Defense-Impact Funding (\$2.3M)

- 2022-2023 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441234095, (150,000 NIS), Turbine Research for Small Jet Engines.
- 2022-2023 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441229126, (350,000 NIS), Turbine Research for Small Jet Engines.

- 2022-2023 MAFAT – Basic Scientific Development, Israeli Ministry of Defense, Contract 4441229115, (250,000 NIS), Diffusion in Non-Reactive Combustor– Correlation Development, Co-PI: Assoc. Prof. I. Jacoby.
- 2022-2023 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441228007, (400,000 NIS), Porous Media Combustor – Micro Engine Integration.
- 2022-2023 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441224748, (150,000 NIS), Adaptive Cycle Engine –Micro Turbofan Demonstrator Stage I.
- 2022-2023 The Peter Munk Research Institute, Center for Security Science & Technology, Contract Number 1020554, (120,000NIS), Ultra-Micro Gas Turbines.
- 2022-2023 Rafael Advanced Defense Systems, Contract 347952838, (350,000 NIS), Developing a Miniature Heat Exchanger for Future Joule Thomson Cryocooler.
- 2021-2022 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441186267, (300,000 NIS), Porous Media Combustor.
- 2021-2022 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441180626, (250,000 NIS), Turbine Research for Small Jet Engines.
- 2021-2024 Rafael Advanced Defense Systems, Contract 347930626, (300,000 NIS), Aerodynamic Assessment of Turbine Profile Loss Correlations.
- 2021-2022 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441157953, (150,000 NIS), Adaptive Cycle Engine – Baseline Micro Turbofan Development.
- 2021-2022 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441157899, (300,000 NIS), Feasibility Study of Embedded Acoustic Flow Control for Efficient Turbines under Low Reynolds Conditions.
- 2020-2021 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441127253, (100,000 NIS), Study of Thermo-Acoustic Coatings.
- 2021-2022 The Peter Munk Research Institute, Center for Security Science & Technology, Contract Number 110101, (150,000NIS), Adaptive Cycle Engine.
- 2020-2021 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441107121, (300,000 NIS), Exploration of turbines in small jet engines.
- 2020-2021 MAFAT – Basic Scientific Development, Israeli Ministry of Defense, Contract 4441097869, (200,000 NIS), Diffusion in Non-Reactive Combustor Flow of a Micro Gas Turbine, Co-PI: Asst. Prof. I. Jacoby.

- 2020-2021 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441063317, (150,000 NIS), Development of a comprehensive methodology for modeling of thermo-acoustic noise cancellation applicable in jet engines.
- 2020-2021 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441063223, (150,000 NIS), Materials exploration and technological demonstration of electrically conductive coatings.
- 2020-2021 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441060620, (300,000 NIS), Embedded Flow Control for High Work and Lift Turbines under Low Reynolds Conditions.
- 2020-2021 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4441061269, (150,000 NIS), Adaptive cycle research to convert micro turbojets to micro turbofans.
- 2020-2021 MAFAT – Basic Scientific Development, Israeli Ministry of Defense, Contract 4441056350, (500,000 NIS), A feasibility study for adapting the high enthalpy tunnel to research in hypersonic inlets. Co-PIs: Asst. Prof. J. Lefkowitz, Prof. Y. Cohen, Asst. Prof. D. Micheals.
- 2019-2020 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4440999133, (100,000 NIS), Aerodynamic Study of Micro Jet Engine Turbines.
- 2019-2020 MAFAT – Basic Scientific Development, Israeli Ministry of Defense, Contract 4440988953, (200,000 NIS), Testing Non-Reactive Combustor Flow of a Micro Gas Turbine in Similarity Conditions. Co-PI: Asst. Prof. I. Jacoby.
- 2018-2019 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4440920514, (200,000 NIS), Stage Performance Rig Development for Micro Turbines.
- 2018-2019 Israel Aerospace Industries, Contract B000102571, (100,000 NIS), Thermodynamic and Through-Flow Analysis of T53 Turboshaft to Turbofan Conversion.
- 2018-2019 MAFAT – Basic Scientific Development, Israeli Ministry of Defense, Contract 4440910567, (300,000 NIS), Simulating Non-Reactive Combustor Flow of a Micro Gas Turbine in Similarity Conditions. Co-PI: Asst. Prof. I. Jacoby.
- 2017-2018 MAFAT – Basic Scientific Development, Israeli Ministry of Defense, Contract 4440847962, (300,000 NIS), Cold Flow Characteristics of a Micro Gas Turbine Combustion Chamber in Similarity Conditions. Co-PIs: Asst. Prof. I. Jacoby, Prof. Y. Cohen
- 2017-2019 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4440844813, (500,000 NIS), Aerodynamic Study of High Pressure Turbines.

- 2016-2017 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4440744689, (250,000 NIS), Technion Turbine Cascade Development.
- 2015-2016 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4440670606, (200,000 NIS), Turbine Cascade towards Aero-thermal Performance Investigation of Small Cooled Blades.
- 2014-2015 MAFAT – New Scientist Research Grant, Israeli Ministry of Defense, Contract 4440597540, (150,000 NIS), Design of Optical Filters towards Temperature Measurements in High Enthalpy Environments.
- 2014-2015 MAFAT – Jet Engine Division, Israeli Ministry of Defense, Contract 4440571313, (250,000 NIS), Aerodynamic and Thermal Performance Assessment of Small Jet Engine Turbines including Cooling Technologies.
- 2013-2014 MAFAT – New Scientist Research Grant, Israeli Ministry of Defense, Contract 4440525311, (200,000 NIS), Gas Temperature and Surface Heat Transfer Measurements in High Enthalpy Environments using Two Color Thermometry.

Educational Allocations (\$1.0M)

- 2022-2023 MAFAT, Israeli Ministry of Defense, Contract 4441225199, (875,000 NIS), Zirmey Silon – Supporting Educational Infrastructure in Jet Engine Related Fields.
- 2021-2022 MAFAT, Israeli Ministry of Defense, Contract 4441113388, (625,000 NIS), Zirmey Silon – Supporting Educational Infrastructure in Jet Engine Related Fields.
- 2019-2020 MAFAT, Israeli Ministry of Defense, Contract 4441016632, (250,000 NIS), Zirmey Silon – Supporting Educational Infrastructure in Jet Engine Related Fields.
- 2019-2020 MAFAT, Israeli Ministry of Defense, Contract 4440993143, (700,000 NIS), Zirmey Silon – Supporting Educational Infrastructure in Jet Engine Related Fields.
- 2018-2019 MAFAT, Israeli Ministry of Defense, Contract 4440931815, (955,000 NIS), Zirmey Silon – Supporting Educational Infrastructure in Jet Engine Related Fields.

Equipment Allocations (\$0.6M)

- 2020-2021 MAFAT – Basic Scientific Development, Israeli Ministry of Defense, (\$130,000), Vibrometer.
- 2019-2020 MAFAT – Jet Engine Division, Israeli Ministry of Defense, (\$200,000), Electric Heater.
- 2016-2017 MAFAT – Jet Engine Division, Israeli Ministry of Defense, (\$60,000), Auxiliary Instrumentation for Dynamometer.
- 2014-2015 MAFAT – Jet Engine Division, Israeli Ministry of Defense, (\$240,000), High Speed Gearbox and Dynamometer.

PUBLICATIONS

Theses

- 2008 Particle Image Velocimetry Investigation of a High Speed Centrifugal Compressor, M.Sc., Purdue University, School of Mechanical Engineering, USA
- 2012 Conjugate Heat Transfer Investigation of a Fixed Rib-Roughened Cooling Passage, Ph.D., Purdue University, School of Mechanical Engineering, USA

Refereed papers in professional journals

Legend: Student [S], Postdoctoral Fellow [P], Research Staff [R], Colleague [C], Student of Colleague [SC], Advisor [A]

Published

- J1.** Cukurel, B., Lawless, P.B. [A], Fleeter, S. [A], “Particle Image Velocity Investigation of a High Speed Centrifugal Compressor Diffuser: Spanwise and Loading Variations” *ASME - Journal of Turbomachinery*, Vol. 132, No.2, 2010.
- J2.** Cukurel, B., Lawless, P.B. [A], Fleeter, S. [A], “Experimental Transonic Centrifugal Compressor Investigation: Loading Effects on Deterministic Diffuser Velocity Fields”, *AIAA - Journal of Propulsion and Power*, Vol.27, No.2, 2011.
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- J4.** Cukurel, B., Selcan, C. [S], Arts T. [A], “Color Theory Perception of Steady Wide-band Liquid Crystal Thermometry”, *Elsevier - Experimental Thermal and Fluid Science*, Vol. 39, pp. 112-122, 2012.
- J5.** Cukurel, B., Acarer, S. [S], Arts T. [A], “A Novel Perspective to High Speed Cross-Hotwire Calibration Methodology”, *Springer - Experiments in Fluids*, Vol. 53, pp. 1073-1085, 2012.
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- J29.** Romm, I. [P], Cukurel, B., “Design of Robust Multispectral Thermography Systems through Extended Optical Characterization and Heuristic-Based Optimization”, *Elsevier - Measurement*, Vol. 177, 109242, 2021.
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- J32.** Sharf, M. [SC], Romm, I. [P], Palman, M. [S], Zelazo, D. [C], Cukurel, B., “Economic Dispatch of a Single Micro- Gast Turbine under CHP Operation with Uncertain Demands”, *Elsevier - Applied Energy*, Volume 309, 118391, 2022.
- J33.** Agarwal, T. [P], Cukurel, B., Jacobi, I. [C], “Localized drag modification in a laminar boundary layer subject to downstream traveling waves via critical and Stokes layer interactions”, *Cambridge University Press - Journal of Fluid Mechanics*, Vol. 937, A10, 2022.
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Under preparation

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- SJ6.** Romm, I. [P], Lin, Y.W.E. [SC], Talmon, R. [C], Cukurel, B., “Band Selection for Multispectral Thermography Systems: A Data-Driven Approach”, under preparation for *IEEE Transactions on Instrumentation and Measurement*.
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- SJ8.** Eitan, S. [S], Cukurel, B., “Measurement of Coating Thermal Properties via Induction Phase Radiometry – An Analytical Approach”, under preparation for *Measurement Science and Technology*.
- SJ9.** Leizeronok, B. [S], Kleiman, A. [R], Julius, S. [P], Cukurel, B., “Guidelines for Higher Efficiency Thermo-Acoustic Emitters Based on Experimentally Validated Analytical Model of Periodically Joule Heated Multi-Layer Films”, under preparation for *Elsevier - Journal of Sound and Vibration*.

Book Chapters

- B1.** Agarwal, T. [P], Julius, S. [S], Leizeronok, B. [R], Cukurel, B., “Sound Excitation Effects on Forced Convection Heat Transfer”, 2017 Lecture Series on Active Flow Control Techniques and Applications, Von Karman Institute for Fluid Dynamics, Rhode-St-Genese, Belgium, ISBN-13978-2-87516-116-1.

Patents

Accepted

- P1.** Cukurel, B., “Acoustic Resonance Excited Heat Exchange”, PCT/IB2015/059642, WO2017103650A1, Priority date 2015-12-15, US20180363991A1, Notice of Allowance 05/05/2020.

Submitted

- P2.** Cukurel, B., “Spatially Global Noise Cancellation”, PCT/IB2018/258943, submitted on 25/04/2018, WO2019207578A1.
- P3.** Cukurel, B., “Measurement of Coating Thermal Properties via Induction Phase Radiometry”, PCT/IL2020/050707, submitted on June 24, 2020.
- P4.** Cukurel, B., “Ultra Micro Gas Turbine Generator”, PCT/IL2021/050037, submitted on January 13, 2021.
- P5.** Cukurel, B., “Additively Manufactured Gas Turbine Engine and Ventilator”, PCT/IB2021/052796, submitted on April 3, 2021.

CONFERENCES

Legend: Student [S], Postdoctoral Fellow [P], Research Staff [R], Colleague [C], Student of Colleague [SC], Advisor [A], *Presenting Author*

Refereed papers in conference proceedings

Published

- C1.** Cukurel, B., “Intentionally Triggered Dynamic Stall For Cascade Lift Enhancement,” AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 8-11, 2007; AIAA 2007-163.
- C2.** Cukurel, B., Lawless, P.B. [A], Fleeter, S. [A], “PIV Investigation in a Centrifugal Transonic Compressor Diffuser: Circumferential and Spanwise Variations,” AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Cincinnati, OH, July 8-11, 2007; AIAA2007-5021.
- C3.** Cukurel, B., Lawless, P.B. [A], Fleeter, S. [A], “PIV Investigation in a Centrifugal Transonic Compressor Diffuser: Flow Features at Various Loading Conditions,” ASME Turbo Expo 2008, Berlin, Germany, June 9-13, 2008; GT2008-51321.
- C4.** Cukurel, B., Lawless, P.B. [A], Fleeter, S. [A], “PIV Investigation in a Centrifugal Transonic Compressor Diffuser: Loading Variation Effects at Midspan,” AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Hartford, CT, July 20-23, 2008; AIAA2008-4699.
- C5.** Cukurel, B., Arts, T. [A], Selcan, C. [S], “Conjugate Heat Transfer Investigations in a Ribbed Roughened Cooling Channel”, 10th International Symposium on Experimental and Computational Aerothermodynamics of Internal Flows, Brussels, Belgium, July 4-7, 2011; ISAIF10-161.

- C6.** *Cukurel, B., Selcan, C. [S], Arts, T. [A], “Film Cooling Extraction Effects on the Aero Thermal Characteristics of Rib Roughened Cooling Channel Flow”, ASME Turbo Expo 2012, Copenhagen, Denmark, June 11-15, 2012; GT2012-68680.*
- C7.** *Cukurel, B., Arts, T. [A], “Local Heat Transfer Dependency on Thermal Boundary Condition in Ribbed Cooling Channel Geometries”, ASME Heat Transfer Conference 2012, Puerto Rico, USA, July 8-12, 2012; HT2012-58519.*
- C8.** *Cukurel, B., Selcan, C. [S], Shashank, J. [R], “Development of an Experimental Facility towards Sound Excitation Effects on Forced Convection Heat Transfer”, ASME Engineering Systems Design and Analysis Conference (ESDA), Copenhagen, Denmark, June 25-27, 2014; ESDA2014-20280.*
- C9.** *Selcan, C. [S], Cukurel, B., Shashank, J. [R], “Heat Transfer Implications of Acoustic Resonances in Turbine Blade Internal Cooling Channels”, ASME Turbo Expo 2015, Montreal, Canada, June 15-19, 2015; GT2015-43142.*
- C10.** *Romm, I. [R], Lev, M. [R], Cukurel, B., “Reciprocity Failure Compensation in Infrared Radiation Thermography”, 56th Israel Annual Conference on Aerospace Sciences (IACAS), TelAviv/Haifa, Israel, March 9-10, 2016, IACAS56-87.*
- C11.** *Kadosh, K. [S], Cukurel, B., “Micro-Turbojet to Turbofan Conversion via Continuously Variable Transmission: Thermodynamic Performance Study”, ASME Turbo Expo 2016, Seoul, South Korea, June 13-17, 2016; GT2016-56274.*
- C12.** *Rist, J.F. [S], Dias, M.F. [S], Palman, M. [S], Zelazo, D. [C], Cukurel, B., “Optimal Combined Heat and Power Integration of a Micro Gas Turbine unit in Distributed Energy Generation”, submitted to 57th Israel Annual Conference on Aerospace Sciences (IACAS), TelAviv/Haifa, Israel, March 15-16, 2017.*
- C13.** *Yablochkin, E. [S], Cukurel, B., “Determination of Optimal Transonic Hotwire Probes in Constant Temperature Anemometry”, submitted to 57th Israel Annual Conference on Aerospace Sciences (IACAS), TelAviv/Haifa, Israel, March 15-16, 2017.*
- C14.** *Yakirevich, E. [S], Mieznier, R. [R], Leizeronok, B. [R], Cukurel, B., “Continuous Closed-Loop Transonic Linear Cascade for Aero-Thermal Performance Studies in Micro-Turbomachinery”, ASME Turbo Expo 2017, Charlotte, NC, USA June 27-29, 2017; GT2017-64562.*
- C15.** *Romm, I. [S], Cukurel, B., “Quantitative High Dynamic Range Imaging in Infrared Thermography”, 58th Israel Annual Conference on Aerospace Sciences (IACAS), TelAviv/Haifa, Israel, March 14-15, 2018, IACAS58-7.*
- C16.** *Palman, M. [S], Leizeronok, B. [R], Cukurel, B., “Mission Analysis and Operational Optimization of Adaptive Cycle Micro-Turbofan”, ASME Turbo Expo 2018, Oslo, Norway, June 11-15, 2018; GT2018-75323.*

- C17.** *Agarwal, T.* [P], *Rahbari, I.* [SC], *Saavedra, J.* [SC], *Paniagua, G.* [C], *Cukurel, B.*, “Multi-Fidelity Analysis of Acoustic Streaming in Forced Convection”, ASME Turbo Expo 2019, Phoenix, AZ, USA, June 17-21, 2019, GT2019-91548.
- C18.** *Gendebien, S.* [P], *Leizeronok, B.* [R], *Kleiman, A.* [R], *Cukurel, B.*, “Experimental Investigation of Acoustic Resonance Excitation Effects on Plate and Double Pipe Heat Exchangers Performance”, ASME Turbo Expo 2019, Phoenix, AZ, USA, June 17-21, 2019, GT2019-91463.
- C19.** *Sher, E.* [C], *Makrenko, I.* [S], *Cukurel, B.*, “Closed Mathematical Solution to the Deflagration Chapman-Jouguet Point by Using the Onsager Relationship”, 60th Israel Annual Conference on Aerospace Sciences (IACAS), TelAviv/Haifa, Israel, March 4-5, 2020.
- C20.** *Badum, L.* [S], *Leizeronok, B.* [R], *Eizenberg, I.* [S], *Cukurel, B.*, “Multi-Parameter Optimization of a 3D Printed Gas Turbine Impeller”, 60th Israel Annual Conference on Aerospace Sciences (IACAS), TelAviv/Haifa, Israel, March 4-5, 2020.
- C21.** *Badum, L.* [S], *Leizeronok, B.* [R], *Cukurel, B.*, “New Insights from Conceptual Design Of an Additive Manufactured 300W Micro Gas Turbine Towards UAV Applications”, ASME Turbo Expo 2020, London, UK, June 22-26, 2020; GT2020-16218.
- C22.** **Agarwal, T.* [P], *Stratmann, M.* [S], *Julius, S.* [P], *Cukurel, B.*, “Exploring Applicability of Acoustic Heat Transfer Enhancement Across Various Perturbation Elements”, ASME Turbo Expo 2020, London, UK, June 22-26, 2020; GT2020-16234. **Won Best Paper Award*
- C23.** *Celik, A.* [S], *Acarer, S.* [C], *Jacobi, I.* [C], *Cukurel, B.*, “Investigation of Inverse Magnus Effect by Partial Circulation Control Elements: Experimental Design”, 8th International Conference on Fluid Flow, Heat and Mass Transfer, Niagara Falls, Canada – May 21-23, 2021; Paper No. 111.
- C24.** *Murugan S.* [P], *Mitra A.* [P], *Kleiman, A.* [R], *Raizner, M.* [C], *Cukurel, B.*, *van Hout, R.*[C], “Effect of Velocity Ratio on Near-Field Flow of Co-axial Jets, 13th International Conference on Thermal Engineering: Theory and Applications, May 22-24, 2022 Baku , Azerbaijan; Paper No. 47
- C25.** *Celik, A.* [S], *Linsky, D.* [R], *Miezner, R.* [R], *Kleiman, A.* [R], *Leizeronok, B.* [S], *Palman, M.* [S], *Acarer, S.* [C], *Cukurel, B.*, "Design Methodology and Concept Demonstration of Preassembled Additively Manufactured Turbomachinery Systems: Case Study of Turbocharger Based Medical Ventilators", Turbomachinery Technical Conference and Exposition GT2022, June 13-17, 2022, Rotterdam, The Netherlands; GT2022-81739.

Invited Lectures

- L1.** “Sound Excitation Effects on Forced Convection Heat Transfer”, Von Karman Institute Lecture Series on Active Flow Control Techniques and Applications, Rhode-St-Genese, May 8-12, 2017.
- L2.** “Micro Gas Turbine to Electric Power: Novel Solution for Drone Flight Time Challenge”, UVID Dronetech 2021, Tel Aviv, November 10, 2021.

- L3.** “Micro Gas Turbines for Extending Endurance of Unmanned Aerial Platforms”, Professional Conference on Propulsion Systems, Association of Engineers, Architects and Graduates in Technological Sciences in Israel, The Mofet Institute, Tel-Aviv, September 13, 2022.

Non-refereed contributions in proceedings and symposia

- N1.** *Cukurel, B.*, “Centrifugal Compressor Flow Model”, 9th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Oct. 7, 2010.
- N2.** *Cukurel, B.*, “Experimental Conjugate Heat Transfer Assessment in a Smooth Cooling Channel”, VKI Annual PhD Presentations, Von Karman Institute, Rhode-St-Genese, Belgium, February 2010.
- N3.** *Cukurel, B.*, “Conjugate Heat Transfer Investigations in Serpentine Cooling Channels”, Technion - IIT, Haifa, Israel, January 2011.
- N4.** *Cukurel, B.*, “Conjugate Heat Transfer Characterization in a Ribbed Cooling Channel”, VKI Annual PhD Presentations, Von Karman Institute, Rhode-St-Genese, Belgium, March 2011.
- N5.** *Cukurel, B.*, “Principle and Practice of Hotwire Anemometry In Turbomachinery Applications”, 11th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Oct. 25, 2012.
- N6.** *Cukurel, B.*, “Operation Principles of a Closed Loop Continuous and Heated Micro High Pressure Turbine Facility”, 12th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Nov. 7, 2013.
- N7.** Selcan, C. [S], Shashank, J. [R], *Cukurel, B.*, “Thermal Management Ramifications of Acoustic Resonances in Turbine Blade Internal Cooling Channels”, 13th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Nov. 6, 2014.
- N8.** Kadosh, K. [S], Palman, M. [S], *Cukurel, B.*, “A Conceptual Performance Study on Integration of a Continuously Variable Speed Fan into a Micro Turbojet”, 14th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Nov. 5, 2015.
- N9.** *Cukurel, B.*, “Avoiding creep in engine hot gas section by advanced cooling schemes and online monitoring of gas/metal temperatures”, Under Extreme Conditions - The Israeli Conference on Materials and Mechanicals Systems at the Forefront of Technology, Technion-IIT, Haifa, Israel, Nov. 25, 2015.
- N10.** *Yablochkin, E.* [S], *Cukurel, B.*, “Multi-Hotwire Probe Sensitivity Optimization in Constant Temperature Anemometry For Transonic Flows”, 23rd Biennial Symposium on Measuring Techniques in Turbomachinery, Univ. of Stuttgart, Stuttgart, Germany, September 1-2, 2016.
- N11.** *Yakirevich, E.* [S], Miezner, R. [R], Leizeronok, B. [R], *Cukurel, B.*, “Transonic Linear Turbine Cascade Development in Technion”, 15th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Nov. 17, 2016.

- N12.** *Julius, S.* [S], *Gold, R.* [S], *Leizeronok, B.* [R], *Cukurel, B.*, “Thermophone - Heat Driven Sound Production”, 34th Israeli Conference of Mechanical Engineering, Technion-IIT, Haifa, Israel, November 22-23, 2016.
- N13.** *Zelazo, D.* [C], *Cukurel, B.*, “Economic Dispatch and Unit Commitment of a Single Micro-Gas Turbine Under CHP Operation”, 16th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Nov. 9, 2017.
- N14.** *Chazan, I.* [S], *Badum., L.* [S], *Cukurel, B.*, “Increasing Efficiency of UAV Internal Combustion Engines via Inverted Brayton Cycle”, 16th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Nov. 9, 2017
- N15.** *Agarwal, T.* [P], *Cukurel, B.*, “Velocity and temperature streaming induced by travelling waves and its effect on heat transfer”, 35th Israeli Conference of Mechanical Engineering, Ben Gurion University of Negev, Beersheva, Israel, October 9-10, 2018.
- N16.** *Englebert, L.* [S], *Chazan, I.* [S], *Miezner, R.* [R], *Cukurel, B.*, “Compact Volute Design Methodology for Uniform Flow Turning”, 17th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Nov. 8, 2018.
- N17.** *Harter, J.* [S], *Cohen, Y.* [S], *Cukurel, B.*, “1-D Model of Secondary Flow in Micro Gas Turbines”, 17th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Nov. 8, 2018.
- N18.** *Kandasamy, K. S.* [P], *Cukurel, B.*, *Jacobi, I.* [C], “End-wall and array-size effects in modeling the annular combustor of a micro gas turbine”, 32nd Israeli Combustion Symposium, Dan Panorama Hotel, Tel Aviv, Israel, Dec. 6, 2018.
- N19.** *Cukurel, B.*, “Printing micro gas turbines for propulsion and power generation”, Additive Manufacturing and 3D printing Day, Technion-IIT, Haifa, Israel, March 27, 2019.
- N20.** *Agarwal, T.* [P], *Cukurel, B.*, *Jacobi, I.* [C], Enhanced Drag Reduction by High Mach Number Streaming, 72nd Annual Meeting of the American Physical Society Division of Fluid Dynamics, Seattle, WA, November 23-26, 2019.
- N21.** *Badum, L.* [S], *Cukurel, B.*, “Micro Gas Turbines with 300W Electric Power Output as Battery Replacement”, 18th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Nov. 28, 2019.
- N22.** *Kleiman, A.* [R], *Leizeronok, B.* [R], *Cukurel, B.*, “Development of Educational Facilities for Jet Engine Rotordynamics and Balancing”, 18th Israeli Symposium on Jet Engines and Gas Turbines, Technion-IIT, Haifa, Israel, Nov. 28, 2019.
- N23.** *Badum, L.* [S], *Leizeronok, B.*[R], *Cukurel, B.*, “Development of Additively Manufactured Micro Gas Turbine”, Additive Manufacturing and 3D printing Day, Technion-IIT, Haifa, Israel, Oct. 12, 2020.
- N24.** *Agarwal, T.* [P], *Cukurel, B.*, *Jacobi, I.* [C], “Three Regimes of Laminar Drag Modification via Travelling Wave Forcing”, 73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics, Virtual, November 22-24, 2020.

- N25.** *Palman, M.* [S], Abraham, Y. [R], Cukurel, B., “Advantages and Challenges of Incessantly Printed Engine”, Additive Manufacturing and 3D printing Day, Technion-IIT, Haifa, Israel, Nov. 10, 2021.
- N26.** *Chala, D.S.* [S], Kalfas, A. [C], Terzis, A. [C], Cukurel, B., "Simultaneous Temperature and Concentration Calibration of Pressure Sensitive Paint for Film Cooling Effectiveness Measurements, XXVI Biennial Symposium on Measuring Techniques in Turbomachinery, Pisa, Italy, 28 – 30 September 2022.
- N27.** *Tsinoglou, M.* [S], Kalfas, A. [C], Terzis, A. [C], Mitra, A. [P], Cukurel, B., Estimating Error Bounds of Quantitative Schlieren Imaging for Turbomachinery Applications, XXVI Biennial Symposium on Measuring Techniques in Turbomachinery, Pisa, Italy, 28 – 30 September 2022.

Poster Presentations

- NP1.** *Badum, L.* [S], Cukurel, B., “Design of a 300 W Micro Gas Turbine Towards UAV Applications”, 9th Conference on Propulsion Technologies for Unmanned Aerial Vehicles, Haifa, Israel, January 30, 2020. *Best Poster winner
- NP2.** Palman, M. [S], Leizeronok, L. [R], Miezner, R. [R], Andreoli, V. [SC], Vyas, U. [SC], Gurbuz, T. [SC], Ilhan, M. [SC], Acarer, S. [C], Paniagua, G. [C], Cukurel, B., “Adaptive Cycle Micro-Turbofan Engine”, ASME Turbo Expo 2019, Phoenix, AZ, USA, June 17-21, 2019.
- NP3.** Rist, J. [S], Dias, M. [S], Palman, M. [S], *Zelazo, D.* [C], Cukurel, B., “Economic Dispatch of a Single Micro-Gas Turbine under CHP Operation”, Future Electric Power Systems and the Energy Transition, Champéry, Switzerland, Feb. 2017.
- NP4.** *Makrenko, I.* [S], Cukurel, B., Sher, E. [C], “Study of the physical feasibility and stability of the Chapman – Jougot points in a homogeneous combustible mixture”, 31st Annual Symposium of the Israeli Section of the Combustion Institute, Tel-Aviv, Israel, December 14, 2017.
- NP5.** *Chazan, I.* [S], Cukurel, B., “Ultra Efficient Waste Heat Recovery by Inverted Brayton Cycle”, SAE Waste Heat Recovery Symposium, Haifa, Israel, May 24, 2018.

ORGANIZING EVENTS

Participation in organizing symposia and workshops

- S1.** 19th Israeli Symposium on Jet Engines and Gas Turbines, Haifa, November 15-17, 2022, Conference Chairman.
- S2.** 60th Israel Annual Conference on Aerospace Sciences (IACAS), TelAviv/Haifa, Israel, March 9-10, 2022, Associate Editor and Program Committee Member.
- S3.** 18th Israeli Symposium on Jet Engines and Gas Turbines, Haifa, November 28th 2019, Organizing Committee Member.
- S4.** Workshop on Advances in Detonation Based Engines and Relevant Unsteady Turbomachinery Flows, Technion-IIT, November 26th, 2019, Workshop Organizer.
- S5.** 2nd Technion Short Course on Aero-Thermal Measurement Techniques for Students from Purdue University, Haifa, Israel, March 10-14, 2019, Organizer and Lecturer.
- S6.** 59th Israel Annual Conference on Aerospace Sciences (IACAS), TelAviv/Haifa, Israel, March 6-7, 2019, Associate Editor and Program Committee Member.
- S7.** 17th Israeli Symposium on Jet Engines and Gas Turbines, Haifa, November 8th 2018, Organizing Committee Member.
- S8.** Workshop on Adjoint Based Turbomachinery Optimization and Uncertainty Quantification in Gas Turbines, Technion-IIT, November 6th, 2018, Workshop Organizer.
- S9.** 1st Technion Short Course on Aero-Thermal Measurement Techniques for Students from Purdue University, Haifa, Israel, March 11-15, 2018, Organizer and Lecturer.
- S10.** 58th Israel Annual Conference on Aerospace Sciences (IACAS), TelAviv/Haifa, Israel, March 14-15, 2018, Associate Editor and Program Committee Member.
- S11.** 16th Israeli Symposium on Jet Engines and Gas Turbines, Haifa, November 9th 2017, Organizing Committee Member.
- S12.** Workshop on Advances in Aerodynamic Design of Turbines and Mixed Flow Compressors, Technion-IIT, November 7th, 2017, Workshop Organizer.
- S13.** 57th Israel Annual Conference on Aerospace Sciences (IACAS), TelAviv/Haifa, Israel, March 15-16, 2017, Associate Editor and Program Committee Member.
- S14.** 15th Israeli Symposium on Jet Engines and Gas Turbines, Haifa, November 17th 2016, Organizing Committee Member.
- S15.** Workshop on Advances in Micro Gas Turbine Cycle Modeling and Hot Gas Section Analysis, Technion-IIT, November 15th, 2016, Workshop Organizer.
- S16.** 56th Israel Annual Conference on Aerospace Sciences (IACAS), TelAviv/Haifa, Israel, March 9-10, 2016, Associate Editor and Program Committee Member.

- S17.** 14th Israeli Symposium on Jet Engines and Gas Turbines, Haifa, November 5th 2015, Organizing Committee Member.
- S18.** Workshop on Advances in Multidisciplinary Turbomachinery Design Optimization and Gas Turbine Combustion, Technion-IIT, November 3rd, 2015, Workshop Organizer.
- S19.** 13th Israeli Symposium on Jet Engines and Gas Turbines, Haifa, November 6th 2014, Organizing Committee Member.
- S20.** Workshop on Advances in Radial Compressor Aerodynamic Design and Turbomachinery Aeroelasticity, Technion-IIT, November 4th, 2014, Workshop Organizer.
- S21.** Workshop on Advances in Aero-thermal Turbine Design and Analysis, Technion-IIT, November 4th 2013, Workshop Organizer.

Participation in organizing international conferences

- O1.** ASME Turbo Expo, London, UK, June 22-26, 2020, Session co-chair on Internal Air Systems & Seals, and Axial Flow Turbine Aerodynamics. (Session Chair and Review Organizer).
- O2.** ASME Turbo Expo, Oslo, Norway, June 11-15, 2018, Session organizer on Experimental Film Cooling. (Session Chair and Review Organizer).
- O3.** 6th CEAS Air and Space Conference, Bucharest, Romania, October 16-20, 2017, Scientific Committee Member.
- O4.** ASME Turbo Expo, Charlotte, NC, USA, June 26-30, 2017, Session organizer on Experimental Film Cooling Hole Effects. (Session Chair and Review Organizer).
- O5.** 12th European Turbomachinery Conference, Stockholm, Sweden, April 3-7, 2017, Organizing Committee Member, Paper Review Organizer.
- O6.** ASME Turbo Expo, Seoul, South Korea, June 13-17, 2016, Session organizer on Experimental Film Cooling Heat Transfer. (Session Chair and Review Organizer).
- O7.** 16th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Honolulu, HI, USA, April 10-15, 2016, Organizing Committee Member and Session co-chair on Internal Cooling (Session Chair and Review Organizer).
- O8.** ASME Turbo Expo, Montreal, Canada, June 15-19, 2015, Session co-chair on Transitional Flows. (Session Chair and Review Organizer)
- O9.** 11th European Turbomachinery Conference, Madrid, Spain, March 23-27, 2015, Organizing Committee Member, Paper Review Organizer, Session co-chair in Heat Transfer and Cooling.
- O10.** ASME Turbo Expo, Dusseldorf, Germany, June 16-20, 2014, Session co-chair on Transitional Flows. (Session Chair and Review Organizer)

Review Activities

Candidacy Exam

- Elad Nussbaum, Ph.D. Qualifier, Technion-IIT, Enhanced Oxidation Resistance and Mechanical Performance of ZrB₂-based Ultra-High Temperature Ceramics (UHTC) under Extreme Conditions via Multilayer Laminate Structures, July 2022. (Advisor: Gideon Grader)
- Alina Larin, Ph.D. Qualifier, Technion-IIT, Hydrodynamic Design of New Generation Drip Emitters using Geometry Modifications of Fluidic Oscillator for Self-Induced Flow Oscillations, July, 2022. (Advisor: Guy Ramon).
- Ariel Sharon, Ph.D. Qualifier, Technion-IIT, Radiation Pressure Accelerated Coalescence of Micron Size Liquid Droplets under the Influence of Gravity and Drag, May, 2022. (Advisor: Yeshayahou Levy)
- Nathan Blanc, Ph.D. Qualifier, Technion-IIT, Radiation-Driven Thermoacoustics, December 2020. (Advisor: Guy Ramon)
- Guangyao Cui, Ph.D. Qualifier, Technion-IIT, Turbulent Coherent Structures and Particle Clusters in a High Reynolds Number Water Tunnel, August 2019. (Advisor: Ian Jacobi)
- Yehuda Fass, Ph.D. Qualifier, Technion-IIT, Power management of internal combustion engine at high altitudes, November 2019. (Advisor: Leonid Tartakovsky)
- Roni Hilel, Ph.D. Qualifier, Technion-IIT, Experimental Study of Thermally Driven Anabatic Flows, December 2017. (Advisor: Dan Liberzon)
- Avshalom Offner, Ph.D. Qualifier, Technion-IIT, Mechanisms of Heat and Mass Transfer in Miniaturized Thermo-acoustic Devices, April 2016. (Advisor: Guy Ramon)

External Thesis Evaluation

- Elissavet Boufidi, Ph.D., Universite Catholique de Louvain, Characterization of Turbulence in High Speed Compressible and Complex Industrial Flows, October 2020. (Advisor: Fabrizio Fontaneto)
- Nir Berdugo, Ph.D., Technion-IIT, Evaporation of Water Droplets in Thermo-acoustic Devices, September 2020. (Advisor: Dan Liberzon)
- Yoel Arcos, M.Sc., Technion-IIT, Optimized Design of a Thermal Vacuum Testbed for Nanosatellite Verification Tests, June 2020. (Advisor: Pini Gurfil)
- Tom Brustin, M.Sc., Technion-IIT, Mass Transfer and Working Temperature of a Wet Thermoacoustic Engine, March 2020. (Advisor: Guy Ramon)
- Ariel Vardi, M.Sc., Technion-IIT, Adsorption-Based Thermoacoustic Refrigeration, March 2020. (Advisor: Guy Ramon)
- Aleksander Zibitsker, M.Sc., Technion-IIT, Development of an Ultrasonic Method for Monitoring the Ablation Process of Silica-Phenolic Thermal Protection Material, January 2020. (Advisor: Dan Michaels)

- Iman Rahbari, Ph.D., Purdue University, Acoustic Streaming in Compressible Turbulent Boundary Layer, November 2019. (Advisor: Guillermo Paniagua)
- Igal Tsarfis, M.Sc., Technion-IIT, Assessment of immersed boundary methods for large eddy simulations of thermal-hydraulic turbulent flows, May 2019. (Advisor: Steven Frankel)
- Lilach Mazor, M.Sc., Technion-IIT, An Analytical, Numerical and Experimental Analysis of the Generalized Equilibrium Flow in a Shear-Driven Open Microchannel, July 2018. (Advisor: Ian Jacoby)
- Jose Pedro Garcia Galache, Ph.D., Universitat Politecnica de Valencia, Study of the flow field through the wall of a Diesel particulate filter using Lattice Boltzmann Methods, May 2017. (Advisor: Antonio Gil Megias)
- Yoram Kozak, Ph.D., Ben Gurion University of the Negev, Solid-Liquid Phase Change with Bulk Solid Motion in the Liquid Phase, March 2017. (Advisor: Gennady Ziskind)
- Roni Hilel, M.Sc., Technion-IIT, Turbulence of Anabatic Thermally Driven Flow, September 2016. (Advisor: Dan Liberzon)
- Mark Epshtein, M.Sc., Technion-IIT, Inlet Guide Vane Separation Control Using Dielectric Barrier Discharge Plasma Actuators, November 2015. (Advisor: David Greenblatt)
- Oren Weltsch, M.Sc., Technion-IIT, Thermoacoustics with adsorption, May 2015. (Co-advisors: Yehuda Agnon, Dan Liberzon)
- David Elatov, M.Sc., Technion-IIT, Separation Control in a Centrifugal Fan Using Plasma Actuator, May 2014. (Advisor: David Greenblatt)

Journal Peer Review

- AIAA Journal of Propulsion and Power (2015)
- AIAA Journal of Thermophysics and Heat Transfer (2014, 2017)
- ASME Journal of Engineering for Gas Turbines and Power (2020)
- ASME Journal of Fluids Engineering (2019)
- ASME Journal of Heat Transfer (2016, 2017, 2018, 2019)
- ASME Journal of Thermal Science and Engineering Applications (2015)
- ASME Journal of Turbomachinery (2015, 2017, 2018, 2020)
- De Gruyter International Journal of Turbo and Jet Engines (2016, 2020)
- Elsevier Aerospace Science and Technology (2017, 2018)

- Elsevier International Journal of Heat and Fluid Flow (2011)
- Elsevier International Journal of Heat and Mass Transfer (2013, 2017, 2021)
- Elsevier International Journal of Thermal Sciences (2018)
- Elsevier Journal of Fluids and Structures (2013)
- Elsevier Journal of Sound and Vibration (2019)
- IOPScience Measurement Science and Technology (2017, 2019)
- MDPI International Journal of Turbomachinery, Propulsion and Power (2017)
- Springer Experiments in Fluids (2015)
- Springer The European Physical Journal Plus (2022)
- World Scientific Journal of Computational Acoustics (2018)

Conference Peer Review

- AIAA/ASME/SAE/ASEE Joint Propulsion Conference (2011, 2012)
- AIAA Scitech Conference (2015, 2016)
- ASME International Mechanical Engineering Congress and Exposition (2018)
- ASME Turbine Blade Tip Symposium (2013)
- ASME Turbo Expo - Turbomachinery Technical Conference & Exposition (2013, 2014, 2015, 2016, 2017, 2018, 2020)
- Council of European Societies (2017)
- European Turbomachinery Conference (2013, 2014, 2016, 2020)
- Israel Annual Conference on Aerospace Sciences (2013, 2016, 2017, 2019)