

האקדמיה הלאומית הישראלית למדעים المجمــع الوطــــني الإســــرائيلي للعلــوم والآداب THE ISRAEL ACADEMY OF SCIENCES AND HUMANITIES









# Adams Seminar 2019 סמינר אדמס תשע"ט

Guest Lecturer

### Professor Shai Efrati, MD

Sackler School of Medicine and Sagol School of Neuroscience, Tel Aviv University; Director, Sagol Center for Hyperbaric Medicine and Research, Assaf-Harofeh Medical Center



### **Professor Shai Efrati, MD**

Professor at the Sackler School of Medicine and the Sagol School of Neuroscience at Tel Aviv University; Director of the Sagol Center for Hyperbaric Medicine and Research, Assaf Harofeh Medical Center; Chair of the Israeli Society for Diving and Hyperbaric Medicine (ISDHM)

The Sagol Center for Hyperbaric Medicine and Research at Assaf Harofeh Medical Center, under Prof. Efrati's management, has become one of the largest hyperbaric centers worldwide, currently treating more than 200 patients per day. Prof. Efrati is also Director of Research & Development at Assaf Harofeh Medical Center, affiliated with Tel-Aviv University. Joining his two passions and positions, Dr. Efrati has initiated a research program focusing on the regenerative effects, starting with neuroplasticity, of Hyperbaric Oxygen Therapy (HBOT). In the first clinical studies it was demonstrated that HBOT can induce neuroplasticity in post-stroke and traumatic brain injury patients even years after the acute Insult. The important clinical results and physiological understanding gained from these studies have led to fruitful ongoing collaboration. A multidisciplinary team is focusing on the regenerative effects of hyperbaric oxygen in various types of brain injuries, such as the central sensitization syndrome known as fibromyalgia, PTSD and so-called aged-related functional decline.

Clinical studies published in recent years present convincing evidence that HBOT could become the sought-after neurotherapeutic method of brain repair for neurological incidents such as traumatic brain injury and stroke. This new understanding leads to a paradigm change in the way we refer to chronic brain injuries: From now on, these should basically be handled like nonhealing wounds in any other part of the body.

Even though many of the beneficial effects of HBOT can be explained as consequences of improved tissue oxygenation, it is now recognized that intermittent increase of oxygen concentration can induce many of the mediators and cellular mechanisms that are usually induced during hypoxia, but without inducing the hazardous "hyperoxic-hypoxic paradoxes." HBOT can decrease the inflammatory response in endothelial cells and thus promote vascular recovery.

In his lecture, Prof. Efrati will focus on new perspectives on chronic unremitting brain injuries and the multi-faceted role of HBOT in neurotherapeutics, based on accumulating recent evidence.





# **Marcel Adams**

Hebrew-speaking philanthropist Marcel Adams, who escaped from a forcedlabor camp in Romania in 1944, fought in Israel's War of Independence and made his fortune in Montreal, has endowed the Adams Fellowship Program to support Israel's brightest doctoral students in the natural and exact sciences each year.

Marcel Adams (Abramovich) was born in Piatra-Neamt, Romania, in 1920. The anti-Semitic regime in Romania during the Holocaust interrupted his studies, triggering a lifelong quest for learning and a zest for the life of the mind. An active member of Hanoar Hazioni in Bucharest, Adams survived forced labor, food shortages and arbitrary harassment by the authorities.

After coming to Israel with the Jewish Agency's help in 1944, Adams settled in Pardes Hanna and participated in the War of Independence. He moved to Canada in 1951 and worked as a tanner before going into real estate. He eventually developed dozens of properties, mostly in eastern Canada, including Galeries de la Capitale, the largest shopping mall in the province of Quebec. With his late wife Annie, he established Tel Aviv University's Adams Institute for Business Management Information Systems and endowed the university's Adams Super Center for Brain Research. Marcel Adams is a Montreal resident, the proud father of four and grandfather of eleven. He remains full of energy and looks at least a decade younger than his 99 years.

Adams officially signed an agreement to establish the Adams Fellowships with the Israel Academy of Sciences and Humanities in Jerusalem in May 2005. The fund is large enough to provide \$1 million annually to outstanding PhD students, covering their full tuition and living expenses throughout three to four years of study and including funds for attending scientific conferences and workshops abroad. Most recipients are aged 26 to 34.

The easy way would have been to hand over a check, but Adams wishes to pay back his 1944 debt to the Jewish people, which gave him a new identity and hope for rebuilding from the ashes of Europe. The fellowship helps young men and women thrive technologically, scientifically and intellectually. In turn, Adams believes they will carry the flag for the next generation and for future generations.

A professional committee at the Academy reviews applications from doctoral students and chooses the awardees, for study in such fields as organic chemistry, molecular biology, chemistry, mathematics, engineering, physics, genetics, computer science and brain research.

Marcel Adams wishes to help the best and brightest academics, those with tremendous potential for growth, who have demonstrated excellence in both quality of mind and personal character.

This year's newly appointed Adams Fellows represent the Fifteenth Cycle of the Adams Fellowship Program.

# ADAMS Fellowship Steering & Approval Committee











Professor Moshe Oren Chairman Professor Naama Barkai

Professor Yoav Benjamini

Professor Gedeon Dagan

Professor Shmaryahu Hoz



Professor Gil Kalai



ProfessorJacob Klein



Prof. Elon Lindenstrauss



Professor Hermona Soreq

# **Former Committee Members**

Professor Moti Segev, Immediate Past Chairman
Professor Amiram Grinvald, Past Chairman
Professor Itamar Willner, Past Chairman
Professor Chaim Cedar, Past Chairman
Professor Yoram Groner, Founding Chairman

Professor Yakir Aharonov Professor Noga Alon Professor Moshe Moshe Professor Moty Heiblum Professor David Kahzdan Professor Abraham Nitzan Professor Yosef Shiloh Professor Yigal Talmi Professor Jacob Ziv





#### Greetings from

#### **Prof. Moshe Oren**

Academy Member, Chair of the Adams Fellowships Steering and Approval Committee

Warm greetings to all our Adams Fellows, Adams Alumni, Adams Committee Members, Academy President Prof. Nili Cohen, Academy Vice-President

Prof. David Harel, Academy Members, and last but surely not least, dear members of the Adams family, whose continuous generosity has enabled this unique program to promote scientific excellence in Israel for fifteen years.

Marcel Adams, who established the Adams Fellowships program, was born in 1920 and lived in Europe through the years of the Second World War and the Holocaust. He never had a chance to complete his formal education, but this only increased his passion for learning and his admiration for human knowledge. It therefore came naturally to him, as a strong supporter of Israel, to invest in advancing knowledge in this country. And what better way is there than investing in our future generation of scientific leaders?

This entrusts you, Adams Fellows, with a special mission: You are expected not only to advance your own careers, but also to fulfil a dream – Marcel's dream of making Israel a hub of scientific excellence and a powerhouse of human knowledge. We members of the Adams committee make every effort to ensure that we pick the best of the best. You, in turn, should never let your curiosity and your passion for knowledge fade out.

And this is perhaps a good time to sound a word of caution. These days, many "basic" discoveries are rapidly transformed into startups or even more than just startups, particularly in our "startup nation." This is a blessing, but also a danger. Mixing pure academic research with business considerations may cause us to refrain from sharing our knowledge with colleagues, lest they "steal our secrets" and move forward faster. That goes against the spirit of pure science and slows down our journey toward better understanding of our universe and everything therein. Don't be afraid to share. Discuss your research openly, listen to criticism, and share your wisdom with colleagues who can benefit from it. In a world where we are overwhelmed by the amazingly rapid flow of new information, scientific research is not a one-person game anymore. I believe that, in this world, collaboration is the best guarantee of accelerated progress. If you are good enough – and, being Adams fellows, you are undoubtedly excellent – you will stand out and get your due recognition.

And when your time comes to be mentors to the next generation of students, please make sure that you keep their passion as intense as yours, and that they remain driven by curiosity and not by convenience. Indeed, we are beginning to see new Adams Fellows whose mentors are former recipients of Adams Fellowships. As committee members, this gives us great joy. I hope whoever stands on this podium ten or twenty years from now will be greeting your students. In the meantime, I would like to wish you all a lot of satisfaction in your scientific endeavors and in moving successfully to the next stages of your careers.

M. Oren

Professor Moshe Oren





Introductory remarks by

### **Professor Nili Cohen**

President of the Israel Academy

I am very pleased to greet our new Adams Fellows for 2019–2020 here at the Israel Academy of Sciences and Humanities. Since the inauguration of

the Adams Fellowship Program in May 2005, 127 Adams Fellows, PhD students of the highest academic standing, have been inducted. Many of them now hold research and teaching positions in major universities and research centers and in the high-tech and biotech industries. We are happy to introduce this year's eight new fellows briefly in this brochure.

Adams Fellows enjoy sustained financial support for three to four uninterrupted years of doctoral study. The amount of the grant has been increased to compensate for inflation and currency fluctuation and to maintain the prestige of the Adams Fellowships. The Fellows also enjoy two privileges unique to this graduate student support program. Each Adams Fellow is eligible for an annual international study grant of \$3,000, to be used for active participation in international scientific conferences/workshops, for laboratory study abroad, for international scientific collaboration or to interview for a postdoctoral position, provided the trip is intended to contribute meaningfully to his/her scientific career.

Adams Fellows are also given the opportunity to interact with one another and to form a small science community of their own, through initiatives such as invited lectures by renowned scientists at annual seminars and conferences, science communication workshops and field trips. We are confident that the Adams Fellowships constitute a meaningful contribution to the training of excellent scientists in Israel.

I would like to extend my heartfelt admiration and appreciation to Mr. Marcel Adams for playing such a vital role in the support of Israel's brilliant young scientists. I was privileged to meet Marcel Adams and his dear late wife Annie while I was rector of Tel Aviv University, and I marveled then at their vision and commitment to the advancement of science. It is a great pleasure for me to celebrate Marcel's 99th birthday at the Israel Academy, and, wishing him good health, I look forward to celebrating his 100th birthday next year! Since getting to know his family personally, I have been extremely impressed by their steadfast devotion to the promotion of science. We are deeply grateful to the Adams family and are honored by their outstanding support.

#### ADAMS Fellows 2019-2020



#### **Roie Dann**

PhD student of Prof. Ronnie Kosloff, Fritz Haber Center for Molecular Dynamics, Institute of Chemistry, Faculty of Sciences and Mathematics, The Hebrew University of Jerusalem.

Dissertation topic: Dynamical Perspectives of Quantum Thermodynamic Resources and Their Utility.

Roie was born in Jerusalem and grew up in Kfar Yehoshua in the Jezreel Valley. After serving in an IDF reconnaissance unit, he returned to Jerusalem to pursue a BSc in chemistry at the Hebrew University of Jerusalem, in the Amirim Natural Sciences Excellence Program.

Upon completing his BSc *summa cum laude*, Roie began his MSc in the quantum theory group of Prof. Ronnie Kosloff, where he is currently conducting his PhD research. During his MSc studies he developed a new laser cooling theory, based on random motion of atoms and collective effects. The intriguing and surprising behavior of nature in the quantum regime and the elegance of the quantum theory inspired him to research open problems in quantum thermodynamics for his doctorate.

In his current research, Roie is studying the dynamic properties of quantum systems interacting with an external environment. His research concentrates on the interplay between external controls and the environment, for the purpose of incorporating these effects to enhance the performance of quantum devices. He hopes that the study of quantum-thermo theoretical models will elucidate the fundamental relationship between quantum mechanics and thermodynamics theories.

Alongside his research, Roie enjoys working as a teaching assistant in thermodynamics and quantum mechanics courses. For his academic achievements, Roie has received the Dr. Abraham Felzenstein Memorial Fund Award, the Dr. Yehoyahin Kanat Memorial Fund Award and the Excellence Award in Memory of Prof. Chava Lifshitz from the Sara Wolf Memorial Fund.



### **Ron Efrat**

PhD student of Dr. Oded Berger-Tal, Marco and Louise Mitrani Department of Desert Ecology (MDDE), Sde-Boker Campus, Ben-Gurion University of the Negev

Dissertation topic: The Effects of Learning and Experience on the Survival and Migration Proficiencies of Captive-bred and Wild Vultures

Ron grew up in Rosh Pina, a picturesque town in northern Israel, where his parents raised him to love and respect nature and people. This upbringing led him to volunteer as a guide in the Hanoar Ha'oved Vehalomed youth movement and later to continue volunteering, guiding and teaching. Ron received his BSc in biology and environmental studies from The Hebrew University of Jerusalem. During his undergraduate studies, he participated in a research project in the lab of Prof. Ran Nathan, where he later completed his MSc research, studying behavior modifications of pelicans during their migration across the Sahara Desert. During and after his MSc, Ron was involved in many other avian ecology projects, with the ultimate goal of advancing bird conservation.

Wishing to focus more on applied research, Ron moved to Midreshet Ben-Gurion for his PhD and joined Dr. Oded Berger-Tal's conservation and animal behavior lab. Ron's research focuses on understanding complex animal behaviors and learning processes and the implementation of this understanding in conservation. He is comparing captive-bred reintroduced vultures and wild-bred vultures with regard to the learning process and its consequences on behavior and survival. His initial results show that different early-life experiences affect the behavior and survival of vultures in later stages of their lives. He hopes that the results of his PhD research, and other projects in which he is involved, will be useful in advancing conservation issues and broadening the understanding of animal ecology and behavior, both locally and globally.





#### **Renan Gross**

PhD student of Dr. Ronen Eldan, Faculty of Mathematics and Computer Science, The Weizmann Institute of Science

Dissertation topic: Regularity and Mean-fields Gibbs Distributions

Renan spent his high-school years at the Israel Arts and Science Academy in Jerusalem, where he took delight in programming, music, and freedom of action. During his army service he made the mistake of reading the book *One Two Three* ... *Infinity* by George Gamow, which really left him no choice but to study mathematics. He finished his undergraduate degree in mathematics and physics in the Technion's Excellence Program, tossed a coin, and carried on for an MSc and PhD in mathematics at the Weizmann Institute, under the supervision of Ronen Eldan.

Renan's research focuses on probability and Boolean functions. Within probability, he mostly tries to understand how to approximate Gibbs distributions, which are commonly found when describing interacting systems such as magnets or friendship networks. His work often entails following random walks around and seeing what can be learned from their trajectories. He has also worked on the origin of life, collective motion of bacterial swarms, and quantum information.

Renan enjoys what he does: Mathematics, with all its hard-set iffs and irrevocable deductions, always manages to surprise him. He tries not to take life too seriously, since it quite obviously doesn't take him very seriously either.



# Aviv Karnieli

PhD student of Prof. Ady Arie, Department of Physical Electronics, School of Electrical Engineering, Tel Aviv University

Dissertation topic: Quantum Effects of Photons and Electrons

Aviv was born in 1989 and grew up in Rehovot, where he now lives with his wife Dana and their newborn daughter Noa. Intrigued by science from an early age, Aviv studied physics in high school and graduated with honors. Following his army service in an elite intelligence unit, he enrolled for a BSc in electrical engineering at Tel Aviv University and was awarded the Adi Lautman Program Scholarship for outstanding students. He went on to join the double major track in physics and electrical engineering, from which he graduated *summa cum laude*. While still an undergraduate, he held student positions at Intel, as an electrical engineer, and then at Applied Materials, as a physicist.

For his MSc, under the supervision of Prof. Ady Arie, Aviv studied analogies between nonlinear optics and quantum mechanics, the interesting effects emerging from them and their possible use for quantum information processing. In 2018, he moved to a direct PhD track under the joint supervision of Prof. Ady Arie and Prof. Ido Kaminer of the Technion, investigating the quantum aspects of electron-light interactions as well as classical and quantum nonlinear optics. Aviv has received the Feder Family and the Electro-optics Fund Awards for his research in nonlinear optics.

#### ADAMS Fellows 2019-2020



#### **Yaron Laufer**

PhD student of Prof. Sharon Gannot, Faculty of Engineering, Bar-Ilan University

Dissertation topic: Bayesian Methods in Speech Processing

Yaron Laufer was born in Petah Tikva. After studying in the Hesder yeshivas in Mitzpe Ramon and Ma'alot and serving as a combat soldier in the Golani Brigade, Yaron began studying for his BSc in electrical engineering at Bar-Ilan University. During his undergraduate studies, he participated in

the prestigious "Chosen Ones" scholarship program for outstanding students, and he received the Rector's and Dean's Prizes and the Faculty Excellence Award for his final project. He graduated *summa cum laude* and first in his class.

Yaron continued in the five-year direct BSc + MSc track. The results of his MSc research in the field of communication and information theory were published in two international conference papers and in the leading journal in information theory. He received the Rector's Prize and the Intel Award and graduated *summa cum laude*.

Following his graduation, Yaron began working as a researcher and algorithm developer in the elite research group at Elbit Systems, where he was involved in developing innovative technologies in the field of electronic warfare.

After three years at Elbit, Yaron returned to Bar-Ilan University to begin his PhD studies in the field of audio signalprocessing. His research focuses on developing statistical methods and theoretical bounds for estimating speech signals from multi-microphone recordings contaminated by reverberation, interfering speakers and noise. Solutions to this problem are of great importance for various applications in devices as diverse as mobile phones, hands-free systems and hearing aids, which nowadays are equipped with multiple microphones. The results of his research thus far have been published in a journal paper and presented in two international conference papers.



#### **Lior Rotem**

PhD student of Prof. Gil Segev, Rachel and Selim Benin School of Computer Science and Engineering, The Hebrew University of Jerusalem

Dissertation Topic: Foundations and Applications of Cryptography for Messaging Platforms

Growing up in Holon and Rishon LeZion, Lior developed a taste for mathematical sciences at a young age. After completing his military service as an officer in the IDF's Intelligence Corps, he

enrolled in a double-major BSc program in computer science and economics at Tel Aviv University. He graduated *summa cum laude* in both majors, co-authoring his first academic paper, in the field of theoretical cryptography, in his last year as an undergraduate. It was then that he fell in love with cryptography as an area of research with profound mathematical foundations and far-reaching practical implications. He moved on to pursue an MSc in computer science at The Hebrew University of Jerusalem, again graduating *summa cum laude*. His MSc thesis, later published as an academic paper, dealt with the theoretical soundness of basic cryptographic assumptions.

Lior is presently carrying on his research in cryptography as a PhD candidate under the supervision of Prof. Gil Segev. His focus is on understanding the security guarantees currently provided by widespread messaging platforms (such as WhatsApp and Telegram) and the "best possible" security that they can demonstrably provide, based on sound mathematical assumptions. He has published and presented several papers on this issue at prestigious conferences and responded to various questions concerning secure messaging. For example, Lior has proposed protocols for secure messaging in group chats and for secure messaging for users who do not precisely follow the instructions provided to them. Alongside his research activity, Lior serves as a teaching assistant in an undergraduate course on cryptography and software security.

During his military service, Lior met his beloved wife Daphne, with whom he lives in Jerusalem.





# **Aseel Shomar**

PhD Student of Prof. Naama Brenner, The Wolfson Department of Chemical Engineering and Prof. Omri Barak, The Rappaport Faculty of Medicine, Tecnion – Israel Institute of Technology

Dissertation topic: Cell States and Transitions in Development and Cancer: Insights from Learning Theory

Aseel was born and raised in Nazareth. Her belief that integrating purportedly alien fields could produce innovative applications led her to study biochemical engineering at the Technion, with the goal of unraveling some of the mysteries of cancer. Her first efforts to tackle cancer using collaborative approaches culminated in her senior thesis, which aimed to develop nano-sized factories to manufacture cancer drugs at tumor sites.

As Aseel began her MSc studies in the prestigious interdisciplinary Nanoscience and Nanotechnology Program at the Technion, she became interested in neuroscience, based as it is on the recruitment of such varied fields as biology, physics, mathematics and computer science. This led her to join the ongoing fruitful collaboration between Prof. Naama Brenner and Prof. Noam Ziv. Her MSc project, on which she has published a paper, described a mesoscopiclevel model that provides an effective description of spontaneous synaptic size dynamics.

Aseel received both degrees *summa cum laude*, ranking first in her class. She has received several prizes and fellowships for her distinguished academic achievements, including the Noam Fellowship, the Technion Alumni Prize, the Goldstein Prize, the Avrahami Prize and the Sherman Interdisciplinary Graduate Fellowship.

Having equipped herself with vital skills from wide-ranging fields, she now aims to introduce concepts long studied in neuroscience to the study of cancer and stem cells. Her PhD project, supervised by Professors Brenner and Barak, will focus on describing the transitions between different cell states using concepts from learning theory.

In addition to her research, Aseel serves as a project instructor in the Faculty of Chemical Engineering and a teaching assistant in the Faculty of Medicine.



# **Shai Tsesses**

PhD student of Prof. Guy Bartal, Andrew & Erna Viterbi Faculty of Electrical Engineering, The Technion – Israel Institute of Technology

Dissertation topic: Topology and Angular Momentum Transfer Between Light and Matter in Nanoscale Photonic Systems

Born and raised in Nesher, Israel, Shai matriculated from the Hebrew Reali School of Haifa, majoring in physics, economics, Arabic, and English Literature. He completed four and a half years of military service with the rank First Lieutenant and currently holds the rank of Captain (in the reserves). He went on to earn a double BSc in electrical engineering and physics from the Technion, in the excellence program of the Faculty of Electrical Engineering.

Shai has been fascinated from a young age not only with science (he was touted as one of Israel's "future scientists" at the 25th Wolf Prize Convention), but also with other subjects, such as history, mythology, arts and sports. Among other hobbies, he plays the clarinet, sings in a band and occasionally contributes articles to Israeli sport blogs and newspapers.

Shai hopes to make use of light for the betterment of humankind. With his advisor, Prof. Bartal, he is investigating the topological traits of light at the nanoscale and the ways in which they can be transferred to matter. Aside from its theoretical contribution, his research could enable new schemes in quantum information processing and particle nano-manipulation, while creating novel, tunable radiation sources. He is also participating in several other scientific endeavors, in collaboration with over 10 research groups in and outside of Israel.

# **ANNUAL ADAMS CONFERENCE** February 2019





Left to Right: Prof. Moshe Oren Prof. David Harel Prof. Naama Barkai Prof. Moti Segev Prof. Yosef Yarden Prof. Elon Lindenstrauss Prof. Yoel Rak





#### Changes in Death Rates Between 1969 and 2013

Between 1969 and 2013, the age-standardized death rate per 100 000 decreased from 1278.8 to 729.8 for all causes (42.9% reduction; 95% Cl, 42.8%-43.0%)

Stroke: 77.0% reduction Heart disease: 67.5% reduc Unintentional injuries: 39.8% Diabetes: 16.5% reduction



Cancer: 17.9% reduction





#### ADAMS Fellows 2018-2019



### Adar Adamsky

PhD student of Dr. Inbal Goshen, Edmond and Lily Safra Center for Brain Sciences (ELSC), The Hebrew University of Jerusalem

Dissertation topic: Dynamic Changes in Long-term Memory Network Organization Underlie Systems Consolidation

# **Ayelet Arazi**

PhD student of Prof. Ilan Dinstein, Department of Brain and Cognitive Sciences, Ben-Gurion University of the Negev

Dissertation topic: Neural Variability and its Relationship with Perception, Attention and Working Memory



### **Yaron Ben-Ami**

PhD student of Asst. Prof. Avshalom Manela, Faculty of Aerospace Engineering, Technion – Israel Institute of Technology

Dissertation topic: Effect of Thermal Boundary Conditions on Heat and Mass Transfer Processes in Rarefied Gas Flows



# **Anael Ben-Asher**

PhD student of Prof. Nimrod Moiseyev, Schulich Faculty of Chemistry, Technion –Israel Institute of Technology.

Dissertation topic: Non-Hermitian Quantum Scattering Theory for Cold Molecular Collision Experiments.



#### **Yoav Levine**

PhD student of Prof. Amnon Shashua, School of Computer Science and Engineering, The Hebrew University of Jerusalem

Dissertation topic: Bridging Deep Learning and Many-Body Physics via Tensor Networks



### Itai Linial

PhD student of Prof. Re'em Sari, Racah Institute of Physics, Faculty of Sciences and Mathematics, The Hebrew University of Jerusalem

Dissertation topic: Common-Envelope Evolution of Binary Stars and Planetary Dynamics





# **Eran Lustig**

PhD student of Prof. Mordechai (Moti) Segev, Faculty of Physics, The Technion – Israel Institute of Technology

Dissertation topic: Topological Photonics – Finding and Describing Topological Phases in Classical and Quantum Optical Systems



# **David Mass**

PhD student of Prof. Tali Kaufman, Department of Computer Science, Bar-Ilan University Dissertation topic: High-Dimensional Expanders in the Theory of Computation

# ANNUAL ADAMS SEMINAR

June 2018



Left to Right: Prof. Peretz Lavie, Batsheva Shor, Anael Ben-Asher, Ayelet Arazi, Eran Lustig, Itai Linial, Yaron Ben-Ami, David Mass, Adar Adamsky, Yoav Levine, Prof. Nili Cohen, Prof. Moti Segev

#### ADAMS Fellows 2017-2018



#### **Leon Anavy**

PhD student of Prof. Zohar Yakhini, Computer Science Department, Technion – Israel Institute of Technology

Dissertation topic: Computational Challenges in Synthetic Biology



# **Evgeniy Boyko**

PhD student of Prof. Moran Bercovici and Prof. Amir D. Gat, Faculty of Mechanical Engineering, Technion – Israel Institute of Technology

Dissertation topic: Non-Uniform Electroosmotic Flow in Rigid and Elastic Microfluidic Configurations



# Shachar Carmeli

Phd student of Dr. Dmitry Gourevitch, Department of Mathematics, Weizmann Institute of Science

Dissertation topic: Harmonic Analysis on Spherical Spaces



# Tuvia Gefen

PhD student of Prof. Alex Retzker, Racah Institute of Physics, Faculty of Sciences and Mathematics, The Hebrew University of Jerusalem

Dissertation topic: Quantum Metrology and Computing with NV Centers and Trapped Ions



### **Bracha Laufer-Goldshtein**

PhD student of Prof. Sharon Gannot (Bar-Ilan) and Prof. Ronen Talmon (Technion), Faculty of Electrical Engineering, Bar-Ilan University

Dissertation topic: Manifold Learning Techniques for Source Localization and Array Processing



# **Ofer Neufeld**

PhD student of Prof. Oren Cohen, Department of Physics, The Technion – Israel Institute of Technology

Dissertation topic: Generation of High Harmonics with Fully Tunable Polarization





# Inbal Oz

PhD student of Prof. Oded Hod and Prof. Avraham Nitzan, School of Chemistry, Faculty of Exact Sciences, Tel Aviv University

Dissertation topic: Simulating Non-Equilibrium Thermodynamics in Open Quantum Systems



# Or Yair

PhD student of Prof. Ronen Talmon, Viterbi Faculty of Electrical Engineering, Technion – Israel Institute of Technology

Dissertation topic: Geometric Learning for Data-Driven Analysis of Dynamical Systems

# **ANNUAL ADAMS SEMINAR**

June 2018



Left to Right: Prof. Moti Segev, Prof. Nili Cohen, Dr. Julian Adams and Yoav Levine, presenting himself at the Awarding Ceremony

#### ADAMS Fellows 2016-2017



### **Angelica Elkan**

PhD student of Prof. Boris Rybtchinski, Department of Organic Chemistry, Weizmann Institute of Science

Dissertation topic: Hybrid Materials Based on Organic Nanocrystals and Carbon Nanotubes (CNTs)



# Hezi Grisaro

PhD student of Prof. Avraham N. Dancygier, Faculty of Civil and Environmental Engineering, Technion – Israel Institute of Technology

Dissertation topic: Response of a Structural Element to Combined Loading of Explosion and Fragmentation Impacts



### **Yael Korem**

PhD student of Prof. Uri Alon, Department of Molecular Cell Biology, Weizmann Institute of Science Dissertation topic: Optimal Division of Labor in Cells and Tissues



### Gali Noti

PhD student of Prof. Noam Nisan, School of Computer Science & Engineering and the Center for the Study of Rationality, The Hebrew University of Jerusalem Dissertation topic: Behavioral Algorithmic Game Theory



# Avia Raviv Moshe

PhD student of Prof. Yaron Oz, School of Physics and Astronomy, Faculty of Exact Sciences, Tel-Aviv University Dissertation topic: Lifshitz Quantum Field Theories, Gravity and Hydrodynamics



# **Asael Roichman**

PhD student of Prof. Haim Cohen, Faculty of Life Sciences, Bar-Ilan University Dissertation topic: Sirtuins in Aging and Metabolism





# **Alexander Shleyfman**

PhD student of Prof. Carmel Domshlak, Faculty of Industrial Engineering and Management, Technion-Israel Institute of Technology

Dissertation topic: Symmetry Breaking and Operator Pruning in Classical Planning and Beyond



# Amitai Yuval

PhD student of Prof. Jake Solomon, Department of Mathematics, The Hebrew University of Jerusalem Dissertation topic: Geodesics of Positive Lagrangians in Almost Calabi-Yau Manifolds

# **ANNUAL ADAMS SEMINAR**

June 2018



Left: Adams Fellows getting to know one another in the lobby

Bottom

Left: Prof. Peretz Lavie, lecturing on sleep Right: Prof. Nili Cohen and Prof. Moti Segev welcoming Dr. Julian Adams





#### ADAMS Fellows 2015-2016



### **Omri Azencot**

PhD student of Prof. Mirela Ben-Chen, Computer Science Department, Technion–Israel Institute of Technology

Dissertation topic: Operator Representations in Geometry Processing



### Izchak Baruch Goldshtein

PhD student of Prof. Moshe Lewenstein and Prof. Ely Porat, Department of Computer Science, Bar-Ilan University

Dissertation topic: Polynomial Lower Bounds on Algorithms and Data Structures



# **Barak Hirshberg**

PhD student of Prof. Benny Gerber, The School of Chemistry, The Hebrew University of Jerusalem Dissertation topic: Structure, Interactions and Dynamics of Many-Atom Systems



# **Michael Kalyuzhny**

PhD student of Prof. Ronen Kadmon, Department of Ecology, Evolution and Behavior, The Hebrew University of Jerusalem and Prof. Nadav Shnerb, Department of Physics, Bar-Ilan University

Dissertation topic: A Theoretical and Empirical Analysis of Factors Affecting the Dynamics and Structure of Ecological Communities.



### **Michal Natan**

PhD student of Prof. Ehud Banin and Prof. Shlomo Margel, Institute of Nanotechnology and Advanced Materials, Bar-Ilan University

Dissertation topic: Synthesis of Rechargeable N-halamine Nanoparticles and Determination of Their Antibacterial and Antibiofilm Activities



# Eran Sagi

PhD student of Prof. Yuval Oreg, Department of Condensed Matter Physics, Weizmann Institute of Science Dissertation topic: Strongly Interacting Topological Phases





# Ido Sagi

PhD student of Prof. Nissim Benvenisty, Azrieli Center for Stem Cells and Genetic Research, The Hebrew University of Jerusalem Dissertation topic: Genetic and Epigenetic Regulation in Human Pluripotent Stem Cells



# **Yinon Spinka**

PhD student of Prof. Ron Peled, Pure Mathematics Department, Tel-Aviv University Dissertation topic: Mathematical Models of Statistical Mechanics

# ANNUAL ADAMS SEMINAR

June 2018



Ayelet Arazi presenting herself and her research to a captivated audience at the awarding ceremony

#### ADAMS Fellows 2014-2015



### **Rivka Bekenstein**

PhD student of Prof. Mordechai Segev, Faculty of Physics, Technion-Israel Institute of Technology Dissertation topic: Gravitational Phenomena and Complex Wavepackets in Nonlinear Optical Systems



# **Sharon Fleischer**

PhD student of Dr. Tal Dvir, Dept. of Molecular Microbiology and Biotechnology, Faculty of Life Science, Tel-Aviv University

Dissertation topic: Engineering 3D Cardiac Stem Cell-Based Patches for Treating Heart Diseases



### Yannai A. Gonczarowski

PhD student of Prof. Sergiu Hart and Prof. Noam Nisan, Institute of Mathematics, School of Computer Science & Engineering and Center for the Study of Rationality, The Hebrew University of Jerusalem

Dissertation topic: Aspects of Complexity and Simplicity in Economic Mechanisms



# Ouri Karni

PhD student of Prof. Gadi Eisenstein, Faculty of Electrical Engineering, Technion-Israel Institute of Technology

Dissertation topic: Ultra-Fast Non-Linear Dynamic Processes in Nanometric Semiconductor Lasers and Optical Amplifiers



### **Jonathan Mosheiff**

PhD student of Prof. Nati Linial, Institute of Computer Science, The Hebrew University of Jerusalem Dissertation topic: Forbidden Induced Subgraphs and their Structural



# **Omri Ram**

Implications

PhD student of Prof. Oren Sadot, Department of Mechanical Engineering, Ben-Gurion University of the Negev

Dissertation topic: Experimental Study of Shock and Blast Wave Interaction with a Rigid Porous Medium.





# **Einat Seidel Posner**

MD/PhD student of Prof. Ofer Mandelbaum, Lautenberg Center for Immunology and Cancer Research, The Hebrew University of Jerusalem Dissertation topic: Viral Immune Evasion Mechanisms



# **Eliran Subag**

PhD student of Prof. Ofer Zeitouni, Department of Mathematics, Weizmann Institute of Science Dissertation topic: Extreme Values and Extremal Processes of Gaussian Fields

# **ANNUAL ADAMS CONFERENCE** February 2019



Professor Yoel Rak guiding a tour of The Fossil Trail: Evidence for Human Evolution exhibition at the Academy





#### ADAMS Fellows 2013-2014



# Ariel Afek

PhD student of Dr. David Lukatsky, Department of Chemistry, Ben-Gurion University of the Negev Dissertation topic: Design Principles and Consequences of Nonconsensus Protein-DNA Binding



### **Yoav Bauman**

PhD student of Prof. Ofer Mandelboim, Lautenberg Center for General and Tumor Immunology, the Hebrew University of Jerusalem Dissertation topic: Pathogen Recognition by Natural Killer Cells



### **Ronen Dar**

PhD student of Prof. Meir Feder and Prof. Mark Shtaif, School of Electrical Engineering, Tel-Aviv University Dissertation topic: Information Theory in Optical-Fiber Communictations



### **Anna Frishman**

PhD student of Prof. Gregory Falkovich, Department of Physics of Complex Systems, Weizmann Institute of Science Dissertation topic: A Search for Statistical Laws in Turbulent Systems



#### **Livnat Jerby Arnon**

PhD student of Prof. Eytan Ruppin, School of Computer Science, Tel-Aviv University

Dissertation topic: Genome-scale Modelling of Cancer Genetics and Metabolism Towards the Identification of Selective Anticancer Treatments



# **Assaf Manor**

PhD student of Prof. Carmel Rotschild, Faculty of Mechanical Engineering, Technion-Israel Institute of Technology

Dissertation topic: Thermodynamic Light Management for 3rd Generation Photovoltaics





# Sivan Refaely-Abramson

PhD student of Prof. Leeor Kronik, Department of Materials and Interfaces, Weizmann Institute of Science

Dissertation topic: A Generalization of the Optimally-tuned Range-separated Hybrid Scheme to the Solid-state



# Liran Rotem

PhD student of Prof. Vitali-Milaman, School of Mathematical Sciences, Tel-Aviv University

Disseration topic: Asymptotic Geometric Analysis: Log-concavity,  $\alpha$ -Concavity, Quasi-Concavity



# **Eitan Schechtman**

PhD student of Prof. Hagai Bergman, The Interdisciplinary Center for Neural Computation (ICNC), the Hebrew University of Jerusalem

Dissertation topic: The Neural Correlates of Basal Ganglia Abnormalities in the Chronic Phencyclidine (PCP) Primate Model of Schizophrenia



# **Avishay Tal**

PhD student of Prof. Ran Raz, Department of Computer Science and Applied Mathematics, Weizmann Institute of Science Dissertation topic: Analysis of Boolean Functions in Theoretical Computer Science

# **ANNUAL ADAMS SEMINAR** June 2018



Left to Right: Dr. Julian Adams, Prof. Moti Segev, Prof. Nili Cohen, Adar Adamsky



Festive dinner in the garden

#### ADAMS Fellows 2012-2013



### **Tslil Ast**

PhD student of Dr. Maya Schuldiner, Department of Molecular Genetics, Weizmann Institute of Science

Dissertation topic: Uncovering the Translocation and Quality Control Mechanisms of Glycosylphosphatidylinositor (GPL) Anchored Proteins



### Assaf Ben Moshe

PhD student of Prof. Gil Markovich, Department of Chemical Physics, Tel-Aviv University

Dissertation topic: Chiroptical Effects Induced in Metal and Semiconductor Nanoparticles



#### Miri Krupkin

PhD student of Prof. Ada Yonath, Department of Structural Biology, Weizmann Institute of Science

Dissertation topic: Towards the Determination of the Structure of Mycobacterium Smegmatis Ribosome and Studies on the Properties of the Prebiotic Ribosome



#### **Nir Lazarovich**

PhD student of Prof. Michah Sageev, Department of Mathematics, Technion-Israel Institute of Technology

Dissertation topic: Non-positively Curved Homogeneous Polygonal Complexes



#### **Or Ordentlich**

PhD student of Prof. Uri Erez, School of Electrical Engineering, Tel-Aviv University Dissertation topic: Robust Lattice Schemes for Multi-User Communication Networks



### **Liel Sapir**

PhD student of Prof. Daniel Harries, Institute of Chemistry and The Fritz Haber Research Center, The Hebrew University of Jerusalem

Dissertation topic: Modeling Osmolyte-Induced Conformational Changes in Biomacromolecules





# **David Tsivion**

PhD student of Prof. Ernesto Joselevich, Department of Material and Interfaces, Weizmann Institute of Science Dissertation topic: Guided Growth of Horizontal Nanowires



# Erez Zohar

PhD student of Prof. Benni Reznik, School of Physics and Astronomy, Tel-Aviv University

Dissertation topic: Quantum Simulations of Quantum Field Theories

# ANNUAL ADAMS CONFERENCE

February 2019



Culmination of the grand fossil tour with a group photo in the lobby

#### ADAMS Fellows 2011-2012



### **Dmitry Batenkov**

PhD student of Prof. Yosef Yomdin, Department of Mathematics, Weizmann Institute of Science

Dissertation topic: Algebraic Reconstruction of Geometric Models from Integral Measurements



### Avraham Braun

PhD student of Prof. Jeffrey Gordon, Department of Solar Energy and Environmental Physics, Ben-Gurion University of the Negev

Dissertation topic: The Physics of High Carrier Injection Rates in Concentrator Photovoltaics



#### **Sophia Buhbut**

PhD student of Prof. Arie Zaban, Institute of Chemistry, Bar-Ilan University Dissertation topic: FRET Mechanism Based on Nanomaterials in Dye-Sensitized Solar Cells: Synthesis, Characterization and Applications



#### **Amir Erez**

PhD student of Prof. Yigal Meir, Department of Physics, Ben-Gurion University of the Negev Dissertation topic: Superconductor to Insulator Transition in Thin Films



### Daphna Nachmani

PhD student of Prof. Ofer Mandelboim, Lautenberg Center for General and Tumor Immunology, The Hebrew University of Jerusalem Dissertation topic: MicroRNAs in Immune-Regulation: Viral Mimicry of Host Mechanisms



# **Amir Nevet**

PhD student of Prof. Meir Orenstein, Department of Electrical Engineering, Technion-Israel Institute of Technology Dissertation topic: Two-Photon Processes in Micro and Nano Semiconductor Structures





# Doron Puder

PhD student of Prof. Nati Linial, Einstein Institute of Mathematics, The Hebrew University of Jerusalem

Dissertation topic: The Combinatorial, Algebraic and Topological Aspects of Word Maps



# Eran Small

PhD student of Prof. Yaron Silberberg, Department of Physics of Complex Systems, Weizmann Institute of Science

Dissertation topic: Statistical Properties of Light Propagating in Non-Linear Systems



# **Hadas Soifer**

PhD student of Prof. Nirit Dudovich, Department of Physics of Complex Systems, Weizmann Institute of Science

Dissertation topic: Probing Electronic Wavefunctions via High Harmonic Generation



# **Amir Wand**

PhD student of Prof. Sanford Ruhman, Department of Chemistry, The Hebrew University of Jerusalem

Dissertation topic: Investigation of the Photochemistry of Retinal Proteins and Model Systems Using Novel Techniques of Ultrafast Spectroscopy: Resolving the Dynamics as well as Structural Information of the Excited States

#### ADAMS Fellows 2010-2011



### **Avital Adler**

PhD student of Prof. Hagai Bergman, Interdisciplinary Center for Neural Computation (ICNC), The Hebrew University of Jerusalem Dissertation topic: Value Encoding in the Striatum in View of Serotonin Neurotransmission



### **Leonid Barenboim**

PhD student of Prof. Michael Elkin, Department of Computer Science, Ben-Gurion University of the Negev Dissertation topic: Efficient Network Utilization in Locality-Sensitive Distributed Algorithms



### **Arren Bar-Even**

PhD student of Prof. Ron Milo, Department of Plant Sciences, Weizmann Institute of Science Dissertation topic: The Design, Analysis and Testing of Synthetic Carbon Fixation Cycles



# **Omer Bobrowski**

PhD student of Prof. Robert J. Adler, Department of Electrical Engineering, Technion-Israel Institute of Technology Dissertation topic: Some Topics in the Algebraic Topology of Random Fields



# **Ronit Bustin**

PhD student of Prof. Shlomo Shamai, Department of Electrical Engineering, Technion-Israel Institute of Technology

Dissertation topic: The I-MMSE approach for Multi-Terminal Problems in the Gaussian Regime



# Klim Efremenko

PhD student of Prof. Amnon Ta-Shma and Prof. Oded Regev, Department of Computer Science, Tel-Aviv University Dissertation topic: Algebraic Constructions in Computational Complexity





# Yoav Livneh

PhD student of Prof. Adi Mizrahi, Department of Neurobiology, The Hebrew University of Jerusalem

Dissertation topic: Adult Neurogenesis: From Synapse Formation, Through Sensory Coding to Animal Behavior



# Itai Roffman

PhD student of Prof. Eviatar Nevo and Prof. Avraham Ronin, The International Graduate Center of Evolution, University of Haifa

Dissertation topic: Studying Suite of Homo Traits in Pan: Supporting Cultural and Genetic Evidence for their Inclusion in Homo Genus



# **Yoav Oved Rosenberg**

PhD student of Prof. Jiwchar Ganor, Department of Geological and Environmental Sciences, Ben-Gurion University of the Negev Dissertation topic: The Fate of Radium in Evaporitic Systems



# **Osip Schwartz**

PhD student of Prof. Dan Oron, Department of Physics of Complex Systems, Weizmann Institute of Science Dissertation topic: Nonlinear Microscopy with Nanoparticles



# Adi Sheinfeld

PhD student of Prof. Avishay Eyal, Electrical Engineering, Tel-Aviv University Dissertation topic: Optical Detection of Alzheimer's Disease Via Ocular Spectroscopy



# **Avital Swisa**

PhD student of Prof. Yuval Dor, Department of Developmental Biology and Cancer Research, The Faculty of Medicine, The Hebrew University of Jerusalem Dissertation topic: Role of LKB1 in Pancreatic Beta Cell Dynamics

#### ADAMS Fellows 2009-2010



#### **Monther Abu-Remaileh**

PhD student of Prof.Yehudit Bergman, Human Genetics, The Hebrew University of Jerusalem

Dissertation topic: Understanding the Molecular Mechanism of Oct-3/4 Oncogenicity



### **Danny Ben-Zvi**

PhD student of Prof. Naama Barkai and Prof. Ben-Zion Shilo, Molecular Genetics, Weizmann Institute of Science Dissertation topic: Scaling and Robustness in Embryonic Development



# **Oded Berger-Tal**

PhD student of Prof. David Saltz, Desert Ecology, Ben-Gurion University of the Negev Dissertation topic: Movement Ecology of Persian Fallow Deer



# **Ronen Gabizon**

PhD student of Prof. Assaf Friedler, Institute of Chemistry, The Hebrew University of Jerusalem Dissertation topic: Activating Proteins by Shifting their Oligomerization Equilibrium: A New Approach to Drug Design



### **Alex Hayat**

PhD student of Prof. Meir Orenstein, Faculty of Electrical Engineering, Technion-Israel Institute of Technology Dissertation topic: Applications of Multi-Photon Processes for Semiconductor for



# **Efrat Mashiach**

**Ouantum Photonics.** 

PhD student of Prof. Haim Wolfson and Prof. Ruth Nussinov ,School of Computer Science, Tel-Aviv University

Dissertation topic: Structural Bioinformatics: Flexible Molecular Docking





# Or Meir

Phd student of Prof. Oded Goldreich, Department of Computer Science and Applied Mathematics,, Weizmann Institute of Science

Dissertation topic: Combinatorial Construction of Probabilistic Proof Systems



# Moshe Mishali

PhD student of Prof. Yonina Eldar, Faculty of Electrical Engineering, Technion-Israel Institute of Technology Dissertation topic: Compressive Processing of Analog Signals



# **Uri Roll**

PhD student of Prof. Lewi Stone , Department of Zoology, Tel-Aviv University Dissertation topic: Spatial Perspectives of Epidemiological and Ecological Problems



# Sivan Sabato

PhD student of Prof. Naftali Tishby, School of Computer Science and Engineering, The Hebrew University of Jerusalem. Dissertation topic: Supervised Learning with Partial Information



# **Efrat Shema**

PhD student of Prof. Moshe Oren, Department of Molecular Cell Biology, Weizmann Institute of Science

Dissertation topic: RNF20 as a Novel Tumor Suppressor: Exploring its Roles in Transcriptional Regulation, Formation and Progression of Cancer, Senescence and Development

#### ADAMS Fellows 2008-2009



#### **Keren Censor**

PhD student of Prof. Hagit Attiya, Computer Science Department, Technion-Israel Institute of Technology Dissertation topic: Probabilistic Methods in Distributed Computing



### **Emanuele Dalla Torre**

PhD student of Dr. Ehud Altman, Department of Condensed Matter Physics, Weizmann Institute of Science

Dissertation topic: Strongly Correlated States in Ultra-cold Atoms



#### **Noam Gross**

PhD student of Prof. Lev Khaykovich, Department of Physics, Bar-Ilan University Dissertation topic: Nonlinear Dynamics and Interactions of Bright Matter-wave Solitons in a Bose-Einstein Condensate.



### **Ishay Haviv**

PhD student of Prof. Oded Regev, School of Computer Science, Tel-Aviv University Dissertation topic: Combinatorics and Theoretical Aspects of Computer Sciences; Complexity of Lattice Problems



#### **Amir Ingber**

PhD student of Prof. Meir Feder, School of Electrical Engineering, Tel-Aviv University Dissertation topic: Coding Methods and Bounds for the Bandwidth Limited Regime



#### **Mor Mordechai Peretz**

PhD student of Prof. Shmuel Ben-Yaakov, Department of Electrical & Computer Engineering, Ben-Gurion University of the Negev Dissertation topic: Time Domain Design of Digital Controllers for PWM Converters





# Michael Orlov

PhD student of Prof. Moshe Sipper, The Department of Computer Science, Ben-Gurion University of the Negev Dissertation topic: Evolutionary Computation



# **Eran Segev**

PhD student of Prof. Eyal Buks, Faculty of Electrical Engineering, Technion-Israel Institute of Technology

Dissertation topic: Back-Reaction Cooling and Quantum Phenomena in Nanomechanical Resonators



# **Gil Segev**

PhD student of Prof. Moni Naor, Department of Computer Science and Applied Mathematics, Weizmann Institute of Science Dissertation topic: The Complexity of Resilient Sketches



# **Reut Shema**

PhD student of Prof. Yadin Dudai, Department of Neurobiology, Weizmann Institute of Science Dissertation topic: The Role of PKMzeta in Long Term Memory Storage in the Rat Brain

#### ADAMS Fellows 2007-2008



#### **Avraham Ben-Aroya**

PhD student of Prof. Oded Regev and Prof. Amnon Ta-Shma, School of Computer Science, Tel-Aviv University Dissertation topic: Quantum Computation and Quantum Information



# Shai Carmi

PhD student of Prof. Shlomo Havlin, Department of Physics, Bar-Ilan University Dissertation topic: Complex Networks: Theory and Applications



### **Chen Davidovich**

PhD student of Prof. Ada Yonath, Department of Structural Biology, Weizmann Institute of Science Dissertation topic: Ribosome Structure and Function



### Shahar Dobzinski

PhD student of Prof. Noam Nisan, School of Computer Science and Engineering, The Hebrew University of Jerusalem Dissertation topic: The Power of Approximations in Mechanism Design



### **Moshe Goldstein**

PhD student of Prof. Richard Berkovits, Department of Physics, Bar-Ilan University Dissertation topic: Interference Effects in Interacting Mesoscopic Systems



#### **Amir Goren**

PhD student of Prof. Gil Ast, Department of Human Molecular Genetics and Biochemistry, Tel-Aviv University

Dissertation topic: Inferring Regulatory Elements of Splicing Using Comparative Genomics

#### Adams Seminar 2018





# Dan Hermelin

PhD student of Prof. Gad M. Landau, Department of Computer Science, University of Haifa Dissertation topic: Algorithmic Challenges in RNA Comparative Analysis



# Yoav Lahini

PhD student of Prof. Yaron Silberberg, Faculty of Physics, Weizmann Institute of Science Dissertation topic: Disordered Nonlinear Systems



### **Guy Ron**

PhD student of Prof. Eliezer Piasetzky, Department of Physics, Tel-Aviv University Dissertation topic: Measurement of the Proton Elastic Form Factors at Low Q2



# **Avraham Saig**

PhD student of Prof. Ehud Ahissar and Dr. Amos Arieli, Department of Neurobiology, Weizmann Institute of Science Dissertation topic: Guiding Principles for Sensory Substitution: From Vision to Touch



# **Alexander Sodin**

PhD student of Prof. Vitali Milman, School of Mathematical Sciences, Tel-Aviv University Dissertation topic: Probabilistic Methods in Asymptotic Geometric Analysis

#### ADAMS Fellows 2006-2007



### Haim Beidenkopf

PhD student of Prof. Eli Zeldov, Faculty of Physics, Weizmann Institute of Science Dissertation topic: Vortex Thermodynamics in High-Temperature Superconductors



### **Liat Benmoyal Segal**

PhD student of Prof. Hermona Soreq, Department of Biological Chemistry, and Professor Hagai Bergman, Physiology, The Hebrew University of Jerusalem

Dissertation topic: The Role of the Cholinergic System in the Pathogenesis of Parkinson's Disease



#### **Yael Elbaz**

PhD student of Prof. Shimon Schuldiner, Department of Biological Chemistry, The Hebrew University of Jerusalem Dissertation topic: Structure-Function Study of Multidrug Transporters



### **Olga Khersonsky**

PhD student of Prof. Dan Tawfik, Faculty of Chemistry, Weizmann Institute Dissertation topic: Mechanistic Enzymology: From Classical Tools to Directed Evolution



### Dana Moshkovitz

PhD student of Prof. Ran Raz, Faculty of Mathematics and Computer Science, Weizmann Institute Dissertation topic: Probabilistically Checkable Proofs



# **Ariel Procaccia**

PhD student of Prof. Jeffrey S. Rosenschein, School of Computer Science and Engineering, The Hebrew University of Jerusalem Dissertation topic: The Theoretical Foundation of Multi-agent Systems (MAS)





# **Carmel Rotschild**

PhD student of Prof. Moti Segev, Physics Department, Technion-Israel Institute of Technology Dissertation topic: Soliton Interactions in Nonlocal Nonlinear Media



# **Ofer Shayevitz**

PhD student of Prof. Meir Feder, School of Electrical Engineering, Tel-Aviv University Dissertation topic: Universal Communications with Feedback



# **Amir Shlomai**

MD/PhD student of Prof. Yosef Shaul, Faculty of Biochemistry, Weizmann Institute Dissertation topic: Metabolic Alterations in the Liver and Hepatitis B Virus Gene Expression



# Noam Stern

PhD student of Prof. Ofer Mandelboim, The Lautenberg Center for Immunology and Cancer Research, The Hebrew University of Jerusalem Dissertation topic: Natural Killer (NK) Cells

#### ADAMS Fellows 2005-2006



# Yael Eshed-Eisenbach

PhD student of Prof. Elior Peles, Department of Molecular Cell Biology, Weizmann Institute of Science Dissertation topic: Neuro-Glial Interactions



# Nathan Keller

PhD student of Prof. Gil Kalai, Einstein Institute of Mathematics, The Hebrew University of Jerusalem Dissertation topic: Probabilistic Combinatorics and its Relations with Harmonic Analysis



### Tal Lev-Ami

PhD student of Prof. Shmuel Sagiv, School of Computer Science, Tel-Aviv University Dissertation topic: Efficient Transformers for the Verification of Heap Manipulating Programs



# **Raz Palty**

PhD student of Dr. Israel Sekler, Department of Physiology and Cell Biology Ben-Gurion University of the Negev Dissertation topic: Characterization of the Novel Exchanger NCLX – a FLJ2233 Gene Product



### **Sharon Shwartz**

PhD student of Prof. Moti Segev, Physics Department, Technion-Israel Institute of Technology Dissertation topic: Nonlinear Optics in CZT:V

