

**PRESIDENT'S REPORT**

**2018**

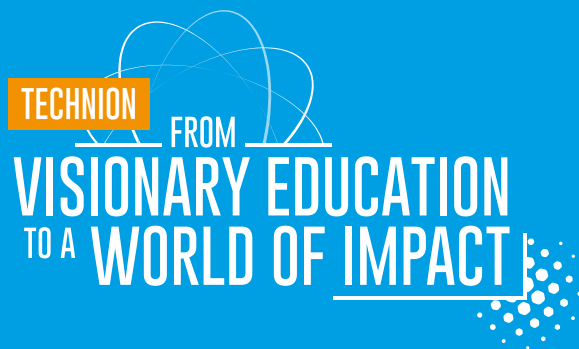


**“from Jaffa to Java”**

**TECHN7ON**

# “from Jaffa to Java”

Technion celebrates over 70 years  
of Israeli innovation



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Cover quote:  
Technion Alumnus Yossi Vardi

{ **CELEBRATING ISRAEL AT 70** }

# TECHN7ON



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Technion Prof. Marcelle Machluf,  
Dean of the Faculty of Biotechnology and  
Food Engineering lights the torch at the official  
ceremony honoring the State of Israel at 70.

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The Jaffa orange, perhaps best known as Israel's first export to the Western world.

*Israel:* the garden of innovation

# “From Jaffa to Java”

or, how a developing country became a developed country in half a century, and positioned itself as a world leader in new technologies in just 70 years.

{ Cesária Évora / **“PETIT PAYS JE T’AIME BEAUCOUP”** }



In the beginning there was a need: a need to take a barren, historic homeland and make it bloom; a need to rebuild the Jewish homeland and create a better future for its people. For over a century, Technion has provided the spirit of innovation that responds to the need: anticipating the problems of tomorrow with pioneering solutions born out of an infinite source of potential.

Often cited as father of the Start-up Nation, Technion alumnus and serial innovator Yossi Vardi was first to describe Israel's meteoric ascent into the community of prosperous nations, coining the term: from Jaffa to Java.

“People here are daring, willing to try, to sacrifice their best years in order to build something meaningful,” he said in honor of Technion's cornerstone centennial. “If you look at the history, Israel was always a start-up nation. A bunch of people came to this part of the world 120 years ago when nothing was here: Israel was a start-up; the kibbutz movement was a start-up; and Technion was a start-up. If you look into the virtues of Israelis you see that our main advantage is to come with an idea from an empty chaos, to create proof of concept and to build around the beginnings. If there had been no Technion, I think we wouldn't have the kind of technological infrastructure or high-tech industry of today. Everything started in the Technion.”





EDUCATION

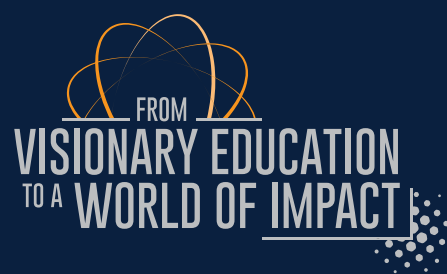
# Degrees of Technion

Technion is the first non-US university to award degrees in the United States through the Jacobs Technion-Cornell Institute at Cornell Tech in New York City.

This year, Israel celebrates 70 years of independence. At Technion, independence is a vessel that enables innovation to express itself in the world of real commodities.

Independence is that which allows our scientists, students, and visionaries to think freely to delve into the unknown, unfettered by fears of survival or the terror of failure. This scientific independence is what has made Technion a partner in a new innovation paradigm, in which industry, researchers and visionaries join together with the objective of creating a better future.

(L-R): Cornell President Martha E. Pollack; former New York City Mayor Michael Bloomberg; Technion President Peretz Lavie; Chair of Cornell University Board of Trustees Robert Harrison at the ribbon-cutting ceremony at Cornell Tech on Roosevelt Island in September 2017.



{ **FROM THE PRESIDENT** }

The Technion cornerstone ceremony took place 36 years before the establishment of the State of Israel, in 1912. At the time, pioneering visionaries were determined to fight prejudice by creating a technical institute that would accept all qualified students regardless of gender or culture. From its earliest days, Technion played a key role in laying the foundations of a nation - educating the skilled workforce that would literally build the country.

In 2018, Technion continues to be a global trailblazer. We are proud that, according to a recent worldwide survey, Technion has been named the world's leading academic institution in preparing students to take top positions in the digital revolution.

Moreover, the recent inaugurations of Cornell Tech in New York City and the Guangdong Technion- Israel Institute of Technology in China consolidate Technion's global impact and empower a new kind of academic independence - an independence beyond the limitation of national boundaries.

On the dawn of Israel's eighth decade, Technion is as committed as ever to serve the State of Israel and all of humanity. To realize this vision, I am pleased to announce the launch of the Technion World Wide Campaign, with a goal to raise \$1.5 billion by 2024 - the year we will celebrate the centennial of Technion's first incoming class. This campaign is ground-breaking, due to its unprecedented scope in Israeli academia. The funds raised will be used for upgrading infrastructure and research activities, as well as for faculty recruitment, and will essentially ensure the next 100 years of Technion.

In the past year, we made great progress implementing the Master Plan to upgrade the physical campus. The building boom is underway with the completion of the David and Janet Polak Visitors Center; the renovation of the Ullmann Building, the new gates to the campus. We will soon start work on new wings for the Faculties of Electrical Engineering, Materials Science and Engineering, and Architecture and Town Planning. In addition, we are planning an additional building for the Rappaport Faculty of Medicine as well as new student dormitories.

We recently announced a \$50 million naming gift from the Helen Diller Family Foundation to support the university's new state-of-the-art quantum center. The center will be named the Helen Diller Center for Quantum Science, Matter and Engineering and will strengthen the university's position as a world leader in quantum science and engineering.

Unfortunately, alongside the many uplifting accomplishments of the past year, we have also been struck with a succession of sad news. Technion - and I personally - mourn the loss of three of our dearest friends: Ruth Rappaport, Peter Munk and Sanford Diller. May their memories be a blessing.

Herzl said, "If you will it, it is not a dream." In recent years, our slogan was, "Dream it. Do it." To do it, we needed that first cornerstone in 1912. To do it, we needed that declaration of independence 70 years ago in 1948. Out of the foundations we lay today, the power of innovation will continue to flow through the laboratories, lecture halls and campuses of all that is Technion.

**Peretz Lavie**



# Benjamin Disraeli / "Upon the education of the people, the fate of this country depends"

A JEWISH STATE IS BORN



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JERUSALEM

SUNDAY, MAY 14, 1948

## THE PALESTINE POST

PRICE: 15 MILLS  
VOL. XXIII, No. 814

**THE PALESTINE POST**

THE SUBSCRIPTION DEPARTMENT  
has returned to The Palestine Post  
office, Hamoudi Street,  
Jerusalem, Tel. 4122.

# STATE OF ISRAEL IS BORN

The first independent Jewish State in 19 centuries was born in Tel Aviv as the British Mandate over Palestine came to an end at midnight on Friday, and it was immediately subjected to the test of fire. As "Medinat Yisrael" (State of Israel) was proclaimed, the battle for Jerusalem raged, with most of the city falling to the Jews. At the

same time, President Truman announced that the United States would accord recognition to the new State. A few hours later, Palestine was invaded by Moslem armies from the south, east and north, and Tel Aviv was raided from the air. On Friday the United Nations Special Assembly adjourned after adopting a resolution to appoint a mediator but without taking any action on the Partition Resolution of November 29.

Yesterday the battle for the Jerusalem-Tel Aviv road was still under way, and two Arab villages were taken. In the north, Acre town was captured, and the Jewish Arm consolidated its positions in Western Galilee.

### Most Crowded Hours in Palestine's History

Between Thursday night and this morning Palestine went through what by all standards must be among the most crowded hours in its history.

For the Jewish population there was the anguish over the fate of the few hundred Hagdush men and women in the Kfar Etzion bloc of settlements near Hebron. Their surrender to a fully equipped superior foreign force desperately in need of a victory was a foregone conclusion. What could not be known, with no communications since Thursday morning, was whether and to what extent the Red Cross and the Truce Coms would secure civilized conditions for prisoners and wounded, and proper respect for the bodies of some of these anxious question-

### JEWS TAKE OVER SECURITY ZONES

The battle for Jerusalem, which began when the British forces withdrew on Friday morning, continued all day Friday and yesterday. The crackle of small-arms fire and explosions of mortar shells were still being heard in the early hours of this morning as the battle entered its third day.

Repeated efforts on Friday evening and again on Saturday by the U.N. Truce Coms to bring about a "cease fire" were brought to naught when the Arab representatives on some of these anxious question-

### Egyptian Air Force Spitfires Bomb Tel Aviv; One Shot Down

Kol Israel, the Tel Aviv broadcasting station, reported at 2 o'clock yesterday afternoon that Tel Aviv had been bombed three times in the previous evening and morning, and that one plane had been shot down and its Egyptian pilot taken prisoner.

In the first raid, four planes attacked from a height of 3,000 feet. Two dropped bombs, while the others strafed the city. Little damage was done. In the second attack, the bombs were dropped on the north of the city and on an Air France plane parked at the airport. The plane was damaged. The third raid was a strafing attack.

### U.S. RECOGNIZES JEWISH STATE

WASHINGTON, Saturday.—Ten minutes after the termination of the British Mandate on Friday, the White House released a formal statement by President Truman that the U.S. Government intended to recognize the Provisional Jewish Government as the de facto authority representing the Jewish State.

The U.S. is also considering lifting the arms embargo but it is not known whether to Palestine or to the entire Middle East, and the establishment of diplomatic relations with the Jewish Provisional Government.

### Proclamation by Head of Government

The creation of "Medinat Yisrael", the State of Israel, was proclaimed at midnight on Friday by Mr. David Ben-Gurion, until then Chairman of the Jewish Agency Executive and now head of the State's Provisional Government.



The first act of the Government, as announced by its head, was in a declaration of independence, Mr. Ben-Gurion said, and in the adoption of the Basic Law of the State, which gave the Provisional Government the right to legislate on all matters of internal organization and administration.



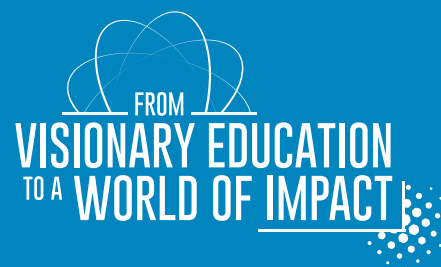
## EDUCATION

## TECHNION

70 years ago, the State of Israel was born, but this wasn't the end of Technion's work, rather the start of a whole new challenge. Never before did the fate of a nation rest so unequivocally on the education of its young people. Israel needed infrastructure, medicine, water and energy. It needed innovators, decision-makers and entrepreneurs. For all of this, the people looked to Technion.

"An Institute of Technology of a high level is one of the most vital needs of the State of Israel at this time," said Prime Minister David Ben Gurion. "We are a small, poor people; our country is largely desolate; we are surrounded by hostile nations who threaten our existence. We are compelled to create, at an unprecedented rate, sources of livelihood for masses of our brethren who are returning to their homeland... For these great and difficult tasks we must call on the aid of the latest achievements of both pure and applied science and the most advanced improvements of technology."

Technion was fast to meet the urgent needs of the fledgling nation, turning out top-quality engineers at vast speed. Yet Israel's Institute of Tech-



nology was at the same time firmly rooted in the future. Reaching for the skies in 1949, Technion recruited Prof. Sydney Goldstein from Manchester University to chair Israel's first department of Aeronautical Engineering. Within a decade, Technion had vastly expanded, leaving the original building in midtown Hadar to serve the young State of Israel and the world from the upper slopes of Mount Carmel.

At Technion, the fulfilment of a need is the starting point. The core of Technion power comes from vision – the vision to create a better future. This is a place where your imagination gets to work; where you are part of the global dynamo of reinvention – where everything is possible.



# Digital Education

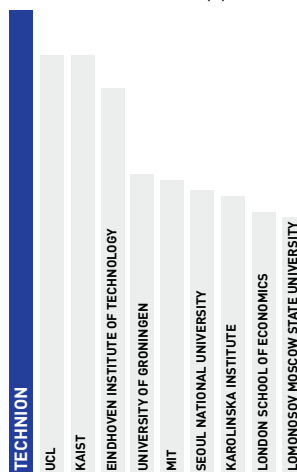
Janusz Korczak / "The one who cares for the future, plants wheat. The one who cares for the years to come, plants trees. The one who cares for future generations, educates people."



FROM  
**VISIONARY EDUCATION**  
TO A **WORLD OF IMPACT**

{ **DIGITAL EDUCATION** }**EDUCATION****TECHNION RANKED N°.1  
WORLDWIDE FOR LEADERSHIP  
IN DIGITAL EDUCATION****DIGITAL 1<sup>ST</sup>**

**F**rom medicine to banking, through to agriculture and communications, the digital revolution is transforming all fields of life. Just as academic institutions worldwide wake up to the fact that the education of students with the latest digital skills is a direct function of success, Technion has been named by a *Times Higher Education* survey as the top institute worldwide in inculcating digital skills. "This is a badge of honor for Technion," says Technion President Prof. Peretz Lavie. "In recent years, Technion has placed considerable emphasis on training its students to meet the changing needs of the digital revolution. Advanced learning technologies are being implemented, including the introduction of MOOCs – Massive Open Online Courses – in various languages – and the development of the flipped classroom approach, which emphasizes self-study using state-of-the-art technology."



In the recent *Times Higher Education* survey, representatives of global leading companies were questioned on required skills to succeed in today's labor market. The survey compiled a list of top academic institutions for providing the best digital skills, ranking Technion first.



A picture is worth a thousand words.  
Learn more with Technion MOOCs.

# MOOC it Up

EDUCATION

Technion is actively pursuing  
the liberation of information and  
access to knowledge worldwide.



Alexander Graham Bell / “Educate  
the masses, elevate their  
standard of intelligence,  
and you will certainly have a  
successful nation.”





Often equated to the revolution sparked by Gutenberg's printed word, the MOOC is providing worldwide access to the most advanced ideas fueling human progress.

"This is part of going global. All the best universities are there," explains Ronit Lis-Hacohen, Managing Director of the Technion International School. A MOOC (Massive Open Online Course) is not a repetition of the traditional class given in the lecture hall, but a whole new form of education, she says. MOOCs have a dual impact - not only online, but also on traditional teaching methods. Increasingly, the online course brings focus and precision to course conceptualization, while students have the option of studying in and around their term-time activities.

There is even the possibility, demonstrated by Prof. Danny Levine, to flip the classroom: giving the MOOC as homework, and leaving the space of direct interaction with students in person for problem-solving, discussion

and in-depth exploration of the subject matter. "It works perfectly and the average grade rises," says Lis-Hacohen.

An exciting MOOC recently launched is given by Prof. Michael Elad on Sparse Representation Theory ("Sparseland"). The first session presents basic theoretical ideas of sparse representations, and the second connects this model to applications in image processing.

Prof. Elad of the Computer Science Faculty, has made sharp inroads into the emerging field of Deep Learning together with his dynamic graduate team. Last year they introduced unprecedented theoretical foundations to the field of Deep Learning, explaining many of the important aspects of multi-layered neural networks.

"IT'S LIKE FALLING IN LOVE"

***"Next time you want them to remember,  
give them something to feel."***

# Science on stage

EDUCATION

**T**echnion Nobel Laureate Distinguished Prof. Dan Shechtman once said: "I aspire to inspire before I expire." There is no coincidence that the pioneer of a whole new form of matter, is also a pioneer in education, with a strong emphasis on the kind of education that leads to innovation. Inspiration has a direct link to excellence in both education and innovation, and at Technion in February 2018, Alan Alda inspired a packed Churchill Auditorium on the causal imperative of effective communication on matters of science and technology.

Best known as Captain Hawkeye Pierce from the hit 1970s television series M\*A\*S\*H, the actor Alan Alda conducts seminars all over the US to help scientists improve the way they ex-

plain their work to other people. Many of the techniques Alda uses to teach communication, such as improvisational theater, are rooted in his acting career, and his talent as an actor was also clearly on display during his lecture. Alda, who is 82, had no problem holding the attention of the crowd in the large auditorium despite the lack of PowerPoint slides, proving that he is indeed a master of communication.

During the hour-long lecture, Alda compared interest in science to the three stages of falling in love (which he invented): attraction, infatuation and commitment. If scientists are able to connect to their listeners in such a way that they achieve commitment and an emotional bond, the listeners will remain engaged in the long-term. Since these are skills

"RELATING IS EVERYTHING"

***"He watched me  
to see if I got it.  
He created a bond  
between us, an  
open channel;  
he wanted me  
to understand.  
That's real  
communication."***

AA recalls as he reflects on the Chilean doctor who saved his life doing an operation he had done dozens of times on M\*A\*S\*H



***“Every scientist has an interesting story. They just need to learn how to tell their story so that others will understand and remember.”***



Alan Alda



Alan Alda and Zuckerman fellows

that everyone can learn, Alda believes that every scientist can be trained to effectively communicate even the most complex information to a lay public.

Alda came to Israel along with a delegation from the Alan Alda Center for Communicating Science at Stony Brook University in order to teach science communication at Technion,

in partnership with the Zuckerman STEM Leadership Program and the Kavli Foundation. Under the auspices of the Zuckerman Institute-Alda Center Scholars Project in Israel, Technion scholars participated in a two-day workshop led by Alda Center facilitators and researchers. A second two-day seminar, sponsored by Kavli, was open to Technion faculty members.

## EDUCATION WITHOUT BORDERS

EDUCATION

The Lalibela group of the Technion Chapter of Engineers Without Borders took part in a mud construction workshop in the Ramon Eco Center in Mitzpe Ramon, during which they built and tested different models of rocket stoves. The Lalibela group is working on developing a new type of a sustainable stove for the Meskele Kristos community in Ethiopia, which will significantly reduce the pollution emitted by the traditional stoves and thereby improve the health of the community members.



EWB

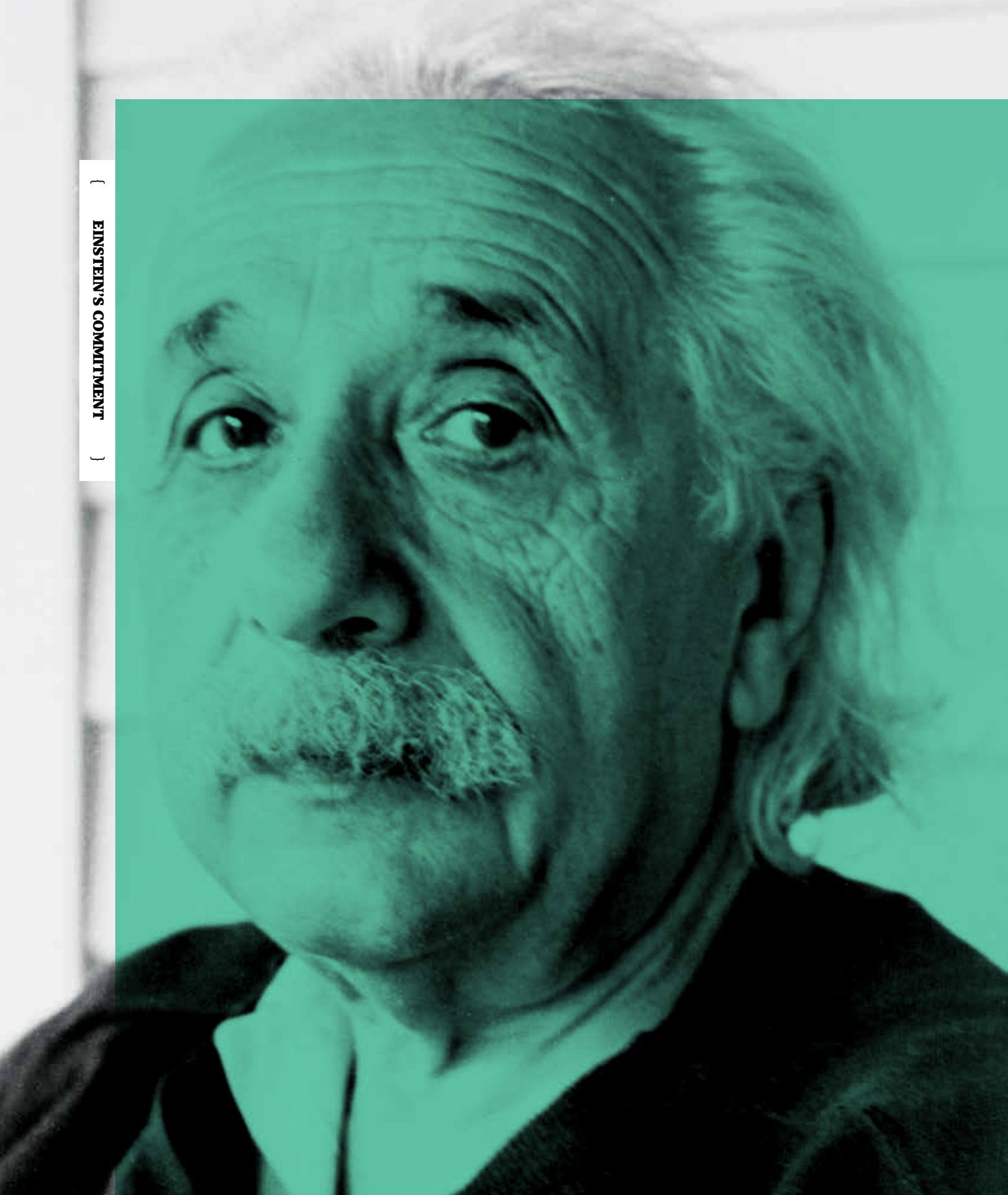








{ EINSTEIN'S COMMITMENT }



## RESEARCH &amp; DISCOVERY

# TECHNION Israel: the paradox

How will the new-born state protect and sustain itself? Albert Einstein / “through the development of science and technology”

AE / “I have seen with great satisfaction how the Technion has been indispensable to Israel’s agriculture, industrial development, economic growth and national security. Its engineers, scientists and architects have literally built the State of Israel.”



The late Helen Diller



# The Quantum Advantage

RESEARCH & DISCOVERY

On Israel's 70th anniversary the Helen Diller Center for Quantum Science, Matter and Engineering was born at Technion. A \$50 million gift from the Helen Diller Family Foundation affirms Technion's global leadership in quantum science, matter and engineering.

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## { THE QUANTUM ADVANTAGE }



**he Helen Diller Center is the first of its kind in Israel and is uniquely poised to advance basic sciences while using the principles of quantum mechanics to impact various engineering fields, and to develop applications for a range of industries. Research will focus on quantum computing and information processing; quantum communications; quantum sensing and detection; quantum simulations; simulators and quantum materials. The Center will also be a quantum hub for interdisciplinary collaboration.**

“T

he Technion is one of the preeminent institutions for technology in the world, and my parents thought this was an important investment for the future of Israel and humanity,” said Helen Diller’s daughter, Jackie Safier, President of the Helen Diller Family Foundation. “The new Helen Diller Center for Quantum Science, Matter and Engineering will help Israel secure its place in the next revolution in science and engineering.”

“Over the years, Technion has gained renowned experience in identifying the needs of industries and opportunities for developing the Israeli economy,” said Technion President Prof. Peretz Lavie. “In the past, this experience has been demonstrated in many fields, including space and aeronautics, microelectronics, electro-optics, and nanotechnology. This ability has allowed Technion to lead historic shifts in Israeli society and play a vital role in building Israel as the ‘Start-up Nation’ – a globally recognized technological powerhouse.”

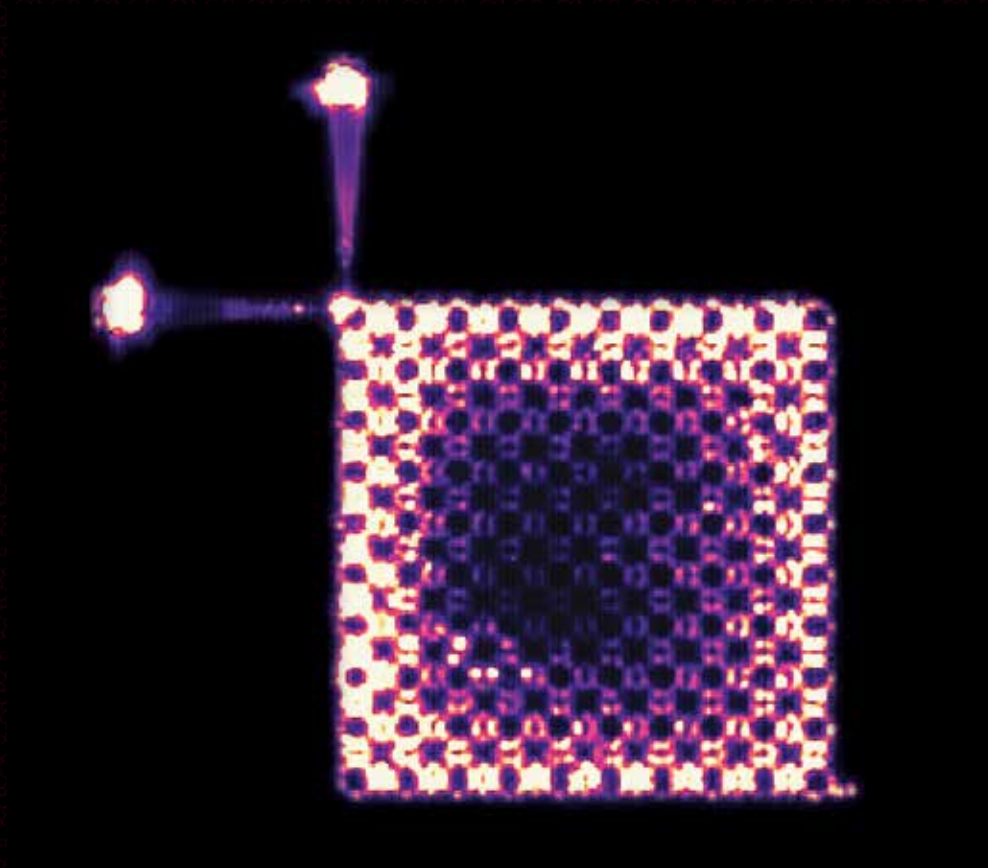
“The Technion is at the forefront of research in many areas involving quantum mechanics,” said Distinguished Prof. Mordechai (Moti) Segev. “Artificial atoms ‘quantum dots’ were first demonstrated by Prof. David Gershoni and students. Gadi Eisenstein and his team developed tiny, inexpensive atomic clocks that found their way into industry. This is where innovative theoretical concepts were developed by Profs. Netanel Lindner, Daniel Podolsky, Assa Auerbach and their students in the area of quantum materials, with huge worldwide impact. These are only a few examples, out of very many, including some by my own team, such as our recent discovery of topological insulator lasers that started off as a quantum simulator system and evolved into devices with real potential impact on technology. The Helen Diller Family Foundation’s generous gift elevates the Technion to the pinnacle of quantum research institutions, and it is truly a game changer.”



*research:*  
{ **PHOTONIC TOPOLOGICAL INSULATORS** }

# THE FUTURE OF SEMICONDUCTOR LASING

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Topological Insulator Lasers



## RESEARCH &amp; DISCOVERY

“**What we did** is going against the odds, going against common knowledge,” says Distinguished Prof. Mordechai (Moti) Segev of the Faculty of Physics. Prof. Segev was referring to the most recent papers, two groundbreaking back-to-back works on Photonic Topological Insulator Lasers published in the prestigious journal *Science*. This work, says the trailblazing professor, is: “possibly the most important thing I ever did.” This is no small statement by the award-winning Robert J. Shillman Distinguished Professor of Physics.

Topological insulators are one of the most innovative and promising areas of physics in recent years, providing new insight into the basic understanding of protected transport. These are special materials that are insulators in their interior but conduct a “super-current” on their surface: the current on their surface is not affected by defects, sharp corners or disorder; it continues unidirectionally without being scattered.

The researchers found a way to use the properties of photonic topological insulators to build a new type of laser which shows a unique fundamental behavior and greatly improves the robustness and the performance of laser arrays, opening the door for a vast number of future applications.

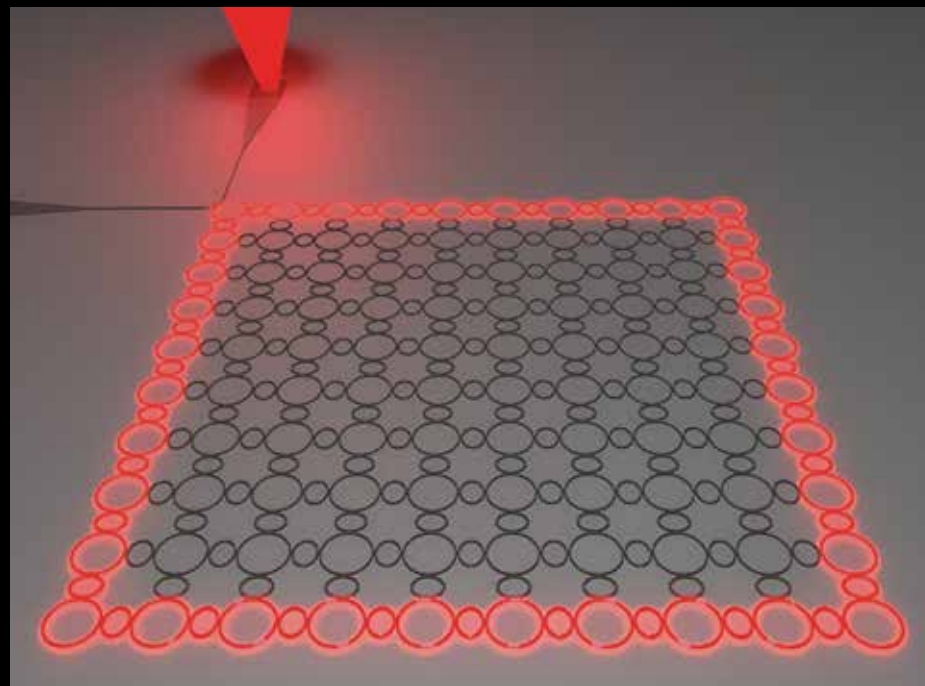


Illustration of the topological insulator laser: the light goes around the perimeter unobstructed by sharp corners or disorder, and eventually exits through the output port.



*research:*  
{ **PHOTONIC TOPOLOGICAL INSULATORS** }



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## THE FUTURE OF SEMICONDUCTOR LASING

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“Our research opens the door to many fundamental questions in science but also for exciting applications,” says Dr. Gal Harari. “One of these applications is a long standing problem in laser science and it is how to take many single emitters and coherently combine them together.”

“In a nutshell, the unique robust properties of topological insulators were believed to fail when the system contains gain, as all lasers must have. But we have shown that this special robustness survives in laser systems that have a special “topo-

(L-R): Dr. Miguel A. Bandres, Distinguished Prof. Mordechai Segev and Dr. Gal Harari



## RESEARCH &amp; DISCOVERY

logical” design, and is able to make the lasers much more efficient, more coherent, and at the same time immune to all kinds of fabrication imperfections, defects and the like. This seems to be an exciting avenue to make arrays of miniature lasers work together as one: a single highly coherent high power laser.”

In their research, the scientists built a special array of micro ring resonators whose lasing mode exhibits topologically-protected transport – light propagates in one direction along the edges of the laser array, immune to defects and disorder and unaffected by the shape of the edges. This in turn, as they experimentally demonstrated, leads to highly efficient single-mode lasing that lasts high above the laser threshold.

The studies were conducted by Dist. Prof. Moti Segev and his team: Dr. Miguel A. Bandres and Dr. Gal Harari; in collaboration with Profs. Demetrios N. Christodoulides and Mercedeh Khajavikhan and their students Steffen Wittek, Midya Parto and Jinhan Ren at CREOL, College of Optics and Photonics, University of Central Florida, together with scientists from the US and Singapore.

The researchers demonstrated that not only are topological insulator lasers theoretically possible and experimentally feasible but that integrating these properties creates more highly efficient lasers. As such, the results of the study pave the way towards a novel class of active topological photonic devices that may be integrated with sensors, antennas and other photonic devices.





research:  
{ **PHOTONIC BIG BANG** }



(L-R): Igor Yulevich, Michael Yannai, Elhanan Maguid, Prof. Erez Hasman, Arkady Faerman, and Dr. Vladimir Kleiner





## RESEARCH &amp; DISCOVERY

# Out of Chaos

At the purest frontiers of science and operating on a nanometric scale, a research team led by Prof. Erez Hasman at the Faculty of Mechanical Engineering has created a photonic “Big Bang” in laboratory conditions.

The multidisciplinary team demonstrated the transition from an orderly physical system to a disorderly system in optics on a nano-scale. The nanooptics Big Bang occurs when there is increased disorder and the system reaches a critical point of disorder, meaning dispersal of the opposite spinning photons in every direction. “Our research deals with the development of nanometer scale optical devices and with understanding the interaction between light and tiny structures,” explains Prof. Hasman, head of the nano-optics lab.

The photonic “Big Bang” used nanometric metasurfaces based on tiny silicon antennas (nano-antennas). “Using nano-antennas that we produced in the lab using silicon technology, we developed a method to control disorder in the system – increasing the entropy,” elaborates Prof. Hasman. “Light is composed

of photons, massless particles, traveling at the speed of light. Each photon behaves like a spinning top that spins either clockwise or counter-clockwise.”

A “photonic spin Hall effect” occurs when an orderly state is transformed into a state of minor disorder, meaning that the angle of the nano-antennas is slightly altered. This effect is a spatial separation between photons spinning in opposite directions; photons with positive spins move in a certain direction and others with negative spins move in the opposite direction.

The research, published in *Science*, provides inspiration for understanding disorder in solid states, and will impact the field of spintronics. Furthermore, it opens opportunities for designing artificial materials while controlling their level of disorder.

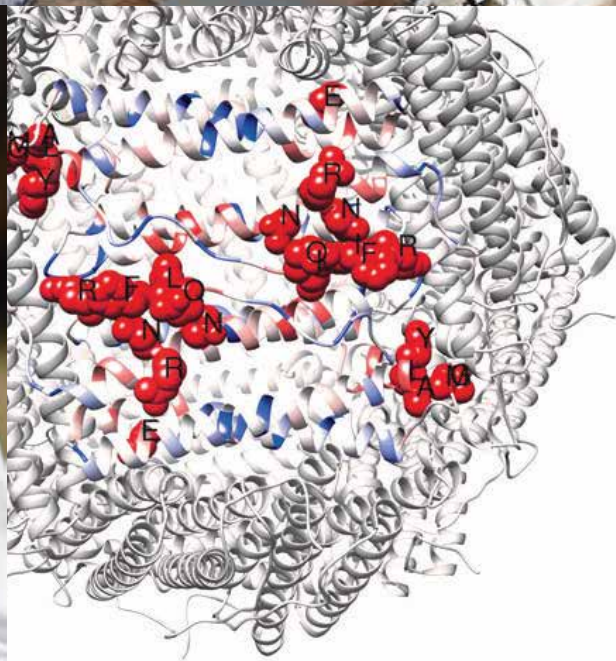




Prof. Esther Meyron-Holtz



Dr. Marianna Truman-Rosentsvit





research:  
{ **CELLULAR FERRITIN** }

# The IRON Lady

RESEARCH & DISCOVERY

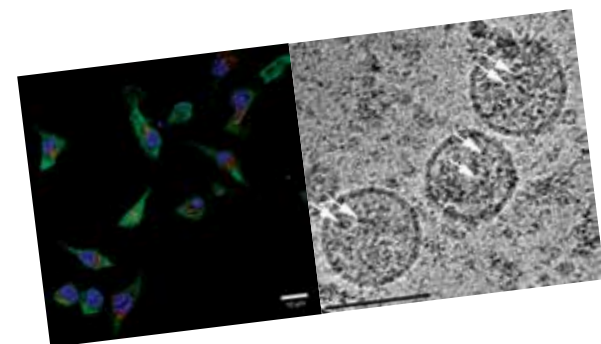
**I**nnovation begins with the blank page, at the space where knowledge ends and the unknown begins. It is found in the open mind of young scientists with fresh eyes that look at an old, unsolved problem in a new way.

So it was this year with Dr. Marianna Truman-Rosentsvit and Prof. Esther Meyron-Holtz who took the well-known medical problems concerning iron distribution in the body, and looked at them in a new way. Their discovery into the cellular mechanism of ferritin opens new possibilities for treatments for a range of diseases, including cancer and neurological disorders.

It is well known that we need iron in our body to stay healthy, but less known that

too much iron can also cause trouble. Revealing the intelligence behind the distribution of iron, the scientists published a benchmark study in the January 2018 issue of *Blood*, that for the first time reveals the mechanism for cellular transport and secretion of ferritin, a protein considered central to iron storage in the body. The findings move ferritin to the center stage of systemic iron metabolism, as a protein that not only stores, but also transports iron in a controlled manner, giving it all the attributes of an iron regulator.

"Our discovery opens the door to a more accurate and comprehensive understanding of the characteristics of ferritin and the molecular processes it undergoes," says Meyron-Holtz. "Such insights are bound to contribute to the development of therapies for numerous neurodegenerative diseases, which are characterized by abnormal iron distribution in the brain."



# Natural GENIUS

nanomimetics

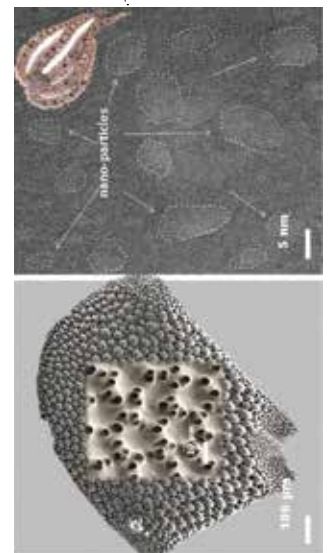
**W**e're all familiar with the Biblical saying: "There's nothing new under the sun." The study of the ancient mechanisms of the brittle starfish led Technion scientists to the innovative secrets which would allow them to follow suit - creating ultra-tough ceramics.

An international research team led by Prof. Boaz Pokroy, Dr. Iryna Polishchuk, Dr. Alex Katsman Stas Kozachevich, and Yael Etinger-Geller at the Faculty of Materials Science and Engineering uncovered the unique protective mechanism of highly resistant lenses found in the *Ophiocoma wendtii*, a coral reef-dwelling brittle starfish. On the arms of this creature are hundreds of focal lenses that hold clues to making tough ceramics. Made of chalk, the lenses are powerful and accurate, and the deciphering of their crystal-line and nanoscale structure has occupied lead researcher Prof. Boaz Pokroy and his team for over three years.

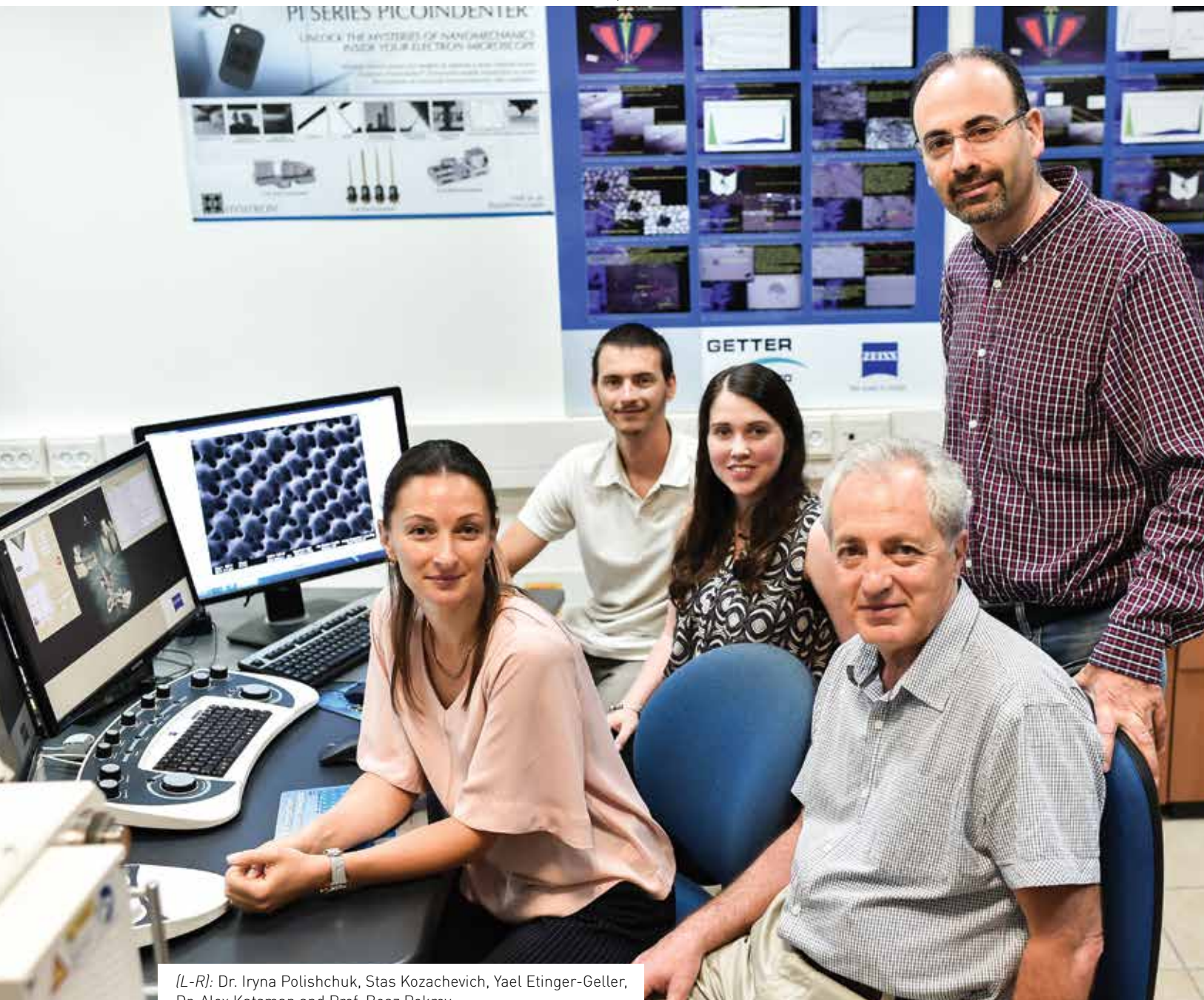
"*Ophiocoma wendtii* lenses are created in the open sea, not in a laboratory, and in effect we have discovered a strategy for making brittle material much more tough and durable under natural conditions," said Pokroy. "It is 'crystal engineering' and tempering without heating and quenching - a process that could be very useful in materials science and engineering. Just as nature exhibits creativity in improving an organism's abilities in various contexts such as strength, sensing, and self-defense, we see very high efficiency by the brittle star fish's use of existing raw materials under natural conditions to create hardy and precise transparent lenses," said Prof. Pokroy.

Scientists and engineers can now apply this biostrategy to toughen and strengthen synthetic ceramic materials utilized in various applications that span from optical lenses to automotive turbochargers and even biomaterial implants. The research was published in *Science* in December 2017.

**How mimetics at the nano scale are improving man-made materials.**



## RESEARCH &amp; DISCOVERY



(L-R): Dr. Iryna Polishchuk, Stas Kozachevich, Yael Etinger-Geller, Dr. Alex Katsman and Prof. Boaz Pokroy





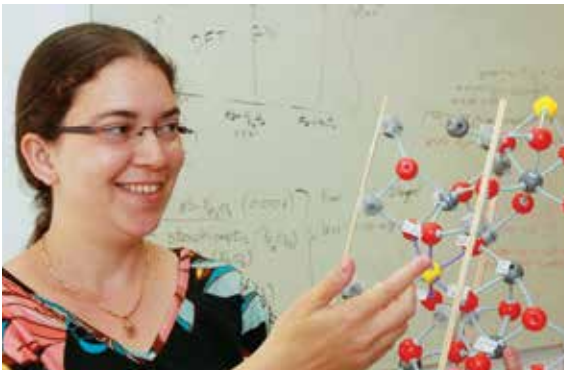
RESEARCH & DISCOVERY

Bill Gates / “Energy innovation is  
not a nationalistic game.”



research:  
 { **RENEWABLE ENERGY** }

# THE POWER BEHIND **POWER**



Prof. Maytal Caspary Toroker: just one of the GTEP energy pioneers. Her research group deciphers the success of doping iron as the best catalyst known today for splitting water. Water splitting is a process in which water is broken down into hydrogen and oxygen.

Innovation aside, the whole of civilization depends on energy. With a finite supply of fossil fuels and an exponential increase in demand for energy, the Grand Technion Energy Program (GTEP) is presently completing a decade of intense multidisciplinary activity.

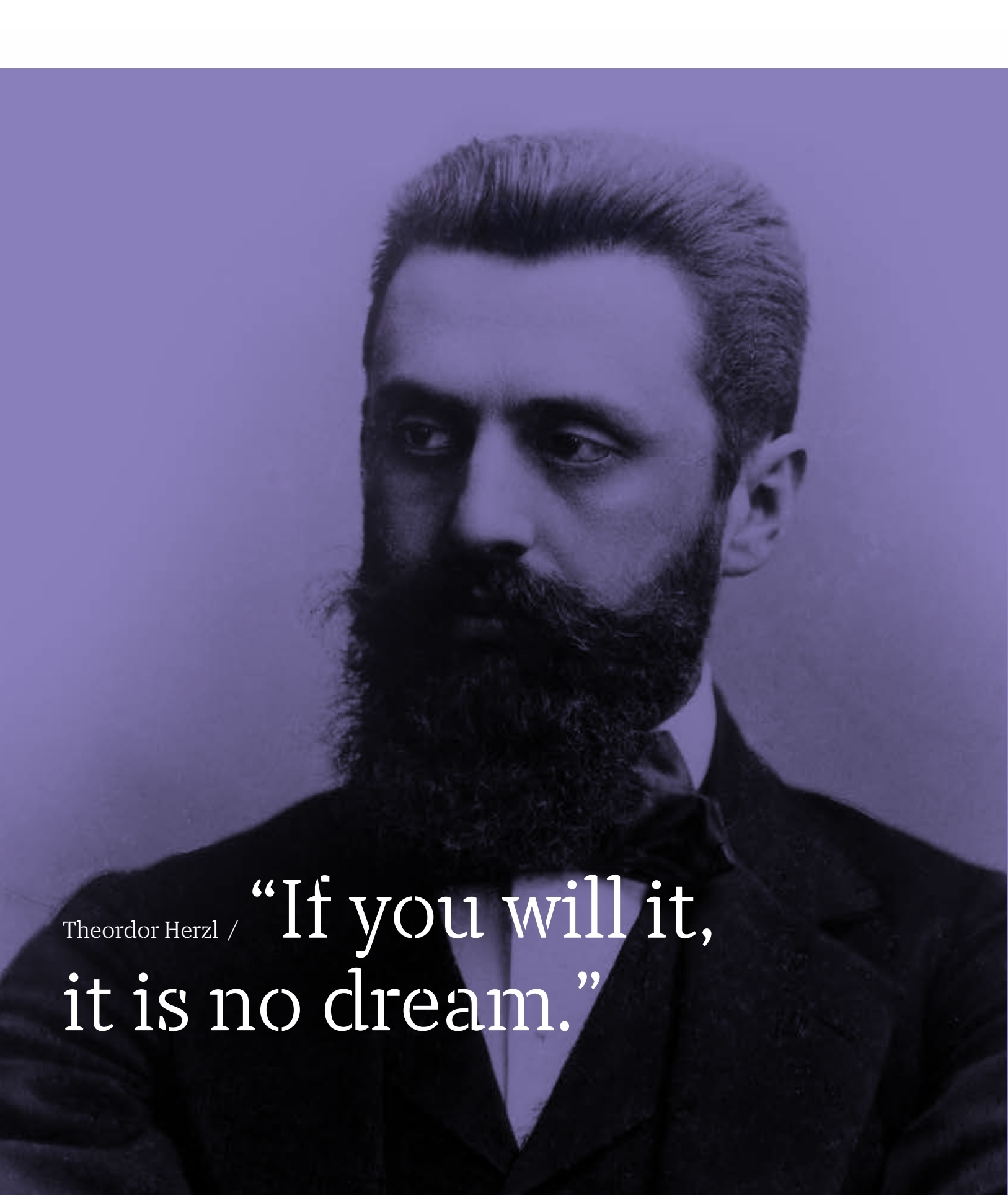
In these ten years, GTEP has grown from proof of concept to a global hive of energy innovation. Spanning faculties, universities and continents,

GTEP's network of scientists and facilities also has laid inroads into industry, pioneering, for example, the cultivation of expertise to harvest Israel's newly found natural gas reserves.

The GTEP Graduate Studies Program attracts highly motivated graduates in science and engineering who are also required to carry out a research project. The program is designed to produce leaders in all energy-related fields.

GTEP is active in four dimensions: Alternative Fuels, Energy Storage and Conversion, Renewable Energy Sources, and Energy Conservation.



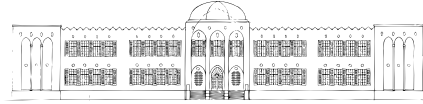


Theodor Herzl /

“If you will it,  
it is no dream.”

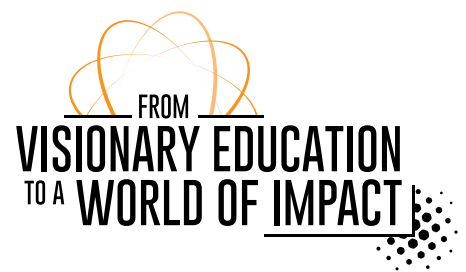
# TECHNION

Shimon Peres / “It’s fortunate that Technion existed before the State of Israel. If it had been the other way around who knows what would have happened.”



## THE NATIONAL IMPERATIVE

In 1912 the Technion cornerstone was laid with the vision to create a university to educate engineers and architects. By 1948, the infrastructure, knowhow and skills were in place to support the birth of the State of Israel.





..... { **1948** }

### **THE STATE IS BORN**

Israel's Declaration of Independence is celebrated by a Technion student body of 680. Three new faculties are quickly added to the prestigious institute: electrical engineering, mechanical engineering and aeronautical engineering.

..... { **1950s & 60s** }



### **ISRAEL DEMANDS MORE ENGINEERS**

As the demand for Technion expertise accelerates, more space is needed. In 1953, Technion moves up hill to a new 300-acre site allocated by PM David Ben Gurion on Mount Carmel.



### **NATIONAL INFRASTRUCTURE WORKS**

As the student body grows to the thousands, Technion expertise is behind the proliferation of power plants, water purification and water distribution facilities.

### **HOLDING UP THE WALL**

After the success of the Six Day War, Technion experts help strengthen the Western Wall in Jerusalem while at the same time its architects design the foundations of the capital.



### **HOME-GROWN HIGH-TECH**

Israel's high-tech industry grows out of Technion labs

Uzia Galil (R), a founding father of Israeli High-Tech in Physics Faculty 1961.





Fathers of the LZW  
compression algorithm  
Profs. Ziv (L) and Lempel

{ **1970s & 1980s** }

### **MICROELECTRONICS**

From the birth of fiber-optics and the development of optoelectronics, Technion graduates are at the forefront of Israeli industry and lead the high-tech revolution.

Israeli breakthroughs in technology are introduced to the world. Among them the LZW compression algorithm used in popular file formats such as jpg, eps, pdf, zip and tiff.

### **THE HIGH-TECH REVOLUTION**

Intel, IBM, Motorola, HP and other technology giants open centers in Israel catalyzing the rapid growth of Israeli R&D. Technion plays a key role in producing the engineers and innovators needed to staff and lead these companies.



Prof. Kidron brings microelectronics to the forefront of research, and Technion positions Israel as a leader in the field



Prof. Arnan Segner (L) at the Technion wind tunnel

{ **1990s** }

### **THE BRAIN GAIN**

After the collapse of the Soviet Union in the early 1990s, Technion leads the national initiative to ensure that the talent of incoming scientists is put to use, including the creation of the first technological incubator in Israel.

### **SEEDING ISRAEL'S START-UP CULTURE**

Research breakthroughs rapidly translate into real-life applications in a spirit of entrepreneurship and innovation. Among the world-changing examples of Technion innovation are the Disk-on-Key and the introduction of the game-changing treatment for Parkinson's disease through the development of Rasagiline, and the isolation of human embryonic stem cells. Across Technion, the start-up culture proliferates.



Disk-on-Key invented by  
Technion alumnus Dov Moran



The PillCam - a revolutionary  
intestinal scope by Technion  
alumnus Gavriel Iddan

Prof. Moussa Youdim,  
Parkinson's therapy pioneer

Yitzhak Rabin / “You, the people of the Technion, have led the way in technology, science and engineering”

... { 2000s }

### **NANO RESEARCH IS LAUNCHED**

Pioneering multidisciplinary science, Technion introduces a new research paradigm – through the Russell Berrie Nanotechnology Institute (RBNI), the Grand Technion Energy Program (GTEP) and the Lorry I. Lokey Interdisciplinary Center for Life Sciences and Engineering.



The world's smallest bible is inscribed on a wafer 0.5mm<sup>2</sup>

### **FIRST ISRAELI NOBEL PRIZES IN SCIENCE**

Technion researchers Distinguished Profs. Avram Hershko and Aaron Ciechanover become Israel's first Nobel laureates in science in 2004 for their discovery of ubiquitin-mediated protein degradation.

..... { 2010s }

### **THE NOBEL LEGACY CONTINUES**

Technion Distinguished Prof. Dan Shechtman is awarded the Nobel Prize in 2011 for the discovery of a new class of matter, Quasicrystals. In 2013, Technion alumnus Arieh Warshel follows in the Nobel tradition for his pioneering work in computational modeling of complex chemical systems.



### **IRON DOME**

In 2011 the world witnesses a game-changing short-range air defense system “Iron Dome,” that saves countless lives in Israel's population centers. The dome is developed by Technion graduates working at Rafael.



### **GLOBAL CONSOLIDATION**

Technion becomes the first foreign university to grant degrees on American soil through the Jacobs Technion-Cornell Institute in New York City. On the other side of the globe, Technion becomes the first Israeli academic institute to establish a university in China, Guangdong Technion-Israel Institute of Technology.



Guangdong Technion-IIT Campus in Shantou

..... { 2020s }

### **QUANTUM LEAP**

As the world approaches 2020, Technion is putting Israel at the pioneering frontier of quantum science with the establishment of the Helen Diller Center for Quantum Science, Matter, and Engineering.



Cornell Tech Campus on Roosevelt Island in New York

## GLOBAL CONVERSATION



# Let it be global

**TECHNION** Whether across faculties, through multiple perspectives or beyond national and cultural borders, the art of innovation depends on the creative synergy of collaboration. In its 70th year, Israel shines as a global nexus of scientific and technological exchange and development. From pure discovery through to multi-frontiered application, Technion is both a source of inspiration and a facilitator of humanity's advance into the unknown.

# The internet of value

GLOBAL CONVERSATION

The digital revolution has left no stone unturned, but perhaps one of the most unexpected revolutions currently in motion is impacting the financial sector with the arrival of the bitcoin and other decentralized electronic currencies.

In September 2017, the Hiroshi Fujiwara Cyber Security Research Center at Technion hosted the conference: "Decentralized Cryptographic Currencies and Blockchains." The conference featured some of the elusive movers and shakers in the field of cryptocurrencies - including Vitalik Buterin, founder of Ethereum, a cryptocurrency and open-source platform based on blockchains. The value of Ethereum skyrocketed in 2017 by thousands of percent.

The conference addressed blockchains, the technological concept behind cryptocurrencies such as Bitcoin, Ethereum, and Zcash and their regulation. It was attended by students, researchers, and industry professionals.

The conference was organized by Prof. Eli Biham, head of the Fuji-

Don Tapscott, Blockchain expert / "The first generation of the digital revolution brought us the Internet of information. The second generation — powered by blockchain technology — is bringing us the Internet of value: a new platform to reshape the world of business and transform the old order of human affairs for the better."

wara Cyber Security Research Center, and Prof. Eli Ben-Sasson, both from the Faculty of Computer Science.

The Hiroshi Fujiwara Cyber Security Research Center focuses on cyber security research such as software and hardware protection, operating systems and cloud information protection as well as communication to and from the cloud, protection of IoT (Internet of Things) systems, verification of software and hardware, computer vision, security of autonomous systems, machine learning for security, cryptology and cryptanalysis, security and privacy of medical and aeronautical systems.

WHY THE WORLD'S  
NEW CURRENCIES  
WILL BE ENCRYPTED







Vitalik Buterin



Prof. Eli Ben-Sasson (L) with conference participants

# From Annapurna to Amazon

GLOBAL CONVERSATION

How two Technion alumni conceived the start-up that would help Amazon move swiftly and smartly into the next generation of digital enterprise.

In 1992, Billy Hrvoye left war-torn Sarajevo on the last Jewish Agency flight to Israel. With his life on-hold, the young refugee convinced the then-dean of the Faculty of Electrical Engineering to let him resume his studies despite the language barrier. "The Technion was my family and my first home," he says. "I came like a refugee and the Technion helped me dream big."

While at Technion, Billy befriended fellow student Nafea Bshara, a Christian Arab from the northern town of

After working at IBM and the Israeli StartUp Galileo, the two Technion alumni decided to start up alone. "We co-founded Annapurna with Ronen Boneh and a group of exceptionally talented leaders," recalls Billy. The product accelerates cloud servers – claiming superior performance, security and efficiency. "Many companies weren't willing to take risks, but Amazon is forward-thinking with a long-term vision," explains Nafea. "Our cultural DNAs matched. We both wanted to change the world."

---

Nafea Bshara / "Our cultural DNAs matched. We both wanted to change the world."

---

Soon Annapurna had 70 people doing R&D in Yokneam and 19 more around the world in sales and marketing. In early 2015, Amazon bought Annapurna Labs reportedly for over \$300 million. After the acquisition, Amazon announced the opening of two new centers in Tel Aviv and Haifa, which will provide work for hundreds of Israelis.

"Our biggest problem is deciding what NOT to do," says Billy: "On a human level, it's important that the people with us fulfill their dreams. We believe that if you can dream it, you can do it."

---

Billy Hrvoye /

"Our mantra is that there are limitless opportunities."

Tarshiha, who, because his father was a Technion student, was born into a Technion dorm. Impressions of infancy ran deep, as Nafea ended up enrolled in the Technion Excellence Program. "I don't think I would get the fundamentals and breadth and exposure that I received at Technion at an Ivy League school," he says.

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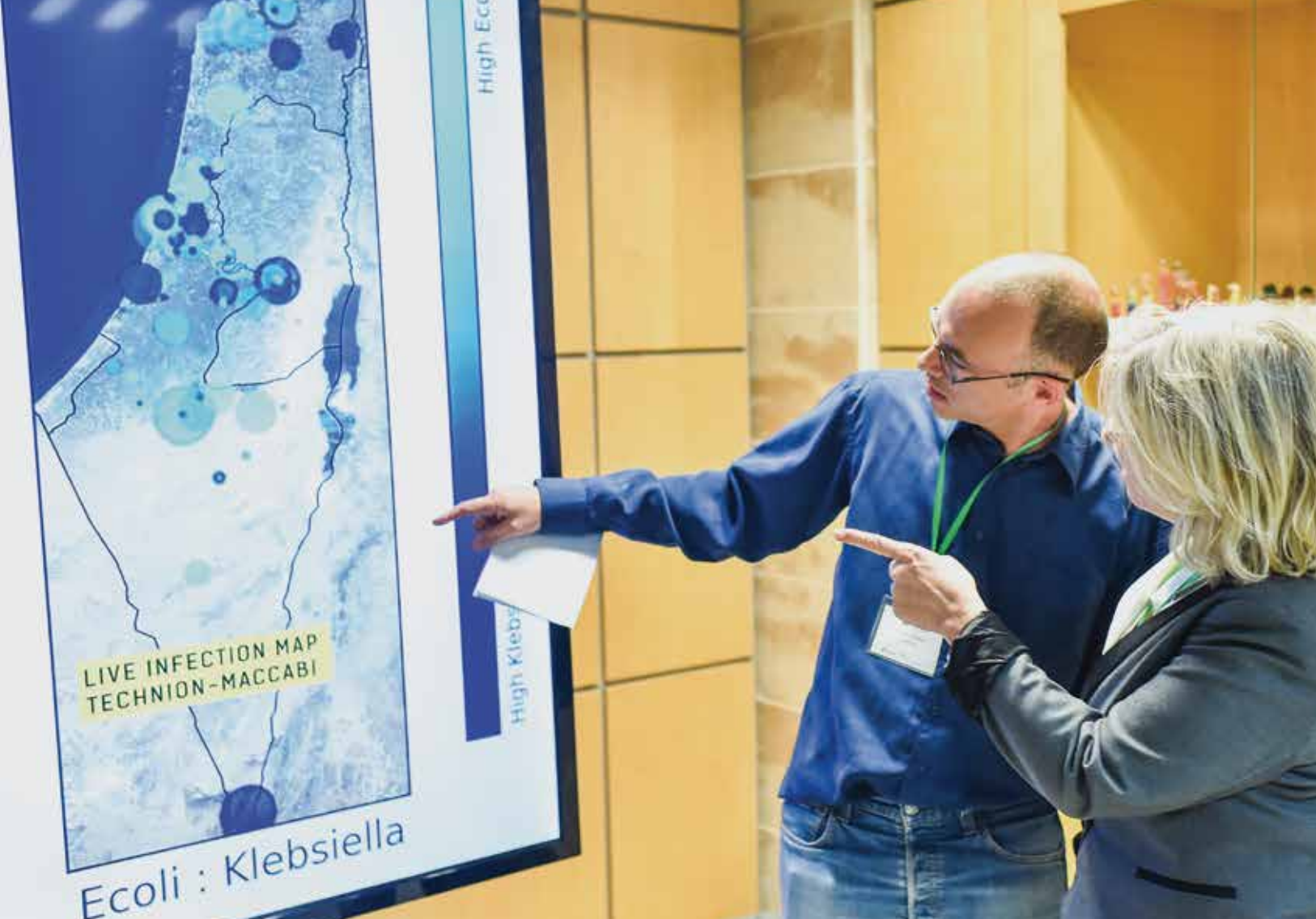


# amaz



(L-R): Nafea Bshara and Bilik Hrvoye





Prof. Roy Kishony (L)

President Prof. Peretz Lavie / “We’re living in a fascinating era for scientific research, an era where extensive data is used to improve diagnoses and treatments”



Conference Lecturers



conversation:  
**HEALTHTECH**

GLOBAL CONVERSATION

# Predicting Health

For two days in December, researchers and students converged on Technion to hear from the world's foremost experts on one of the most dynamic and groundbreaking fields today: using deep learning and big data to improve healthcare

Technion recently hosted the first ever "Biomedical Informatics – Big Data Science" Conference, drawing a large audience eager to hear about the latest developments in this fascinating field. Applying deep learning to medi-

cal data makes it possible to generate new hypotheses and to make discoveries that would not have been possible in the past. The conference was brilliantly organized by Prof. Roy Kishony, world authority on antibiotic resistance and Head of the Technion Lokey Center for Life Sciences and Engineering and Dr. Kira Radinsky, visiting Technion professor and director of data science of eBay. Their unique synergy resulted in a precise mix of speakers who covered a wide range of topics – from prac-

tical applications of data science in medical care to ethical precision medicine and next generation healthcare. In the course of two days, 24 eminent speakers from around the world shared their latest research findings with the international audience. The conference was sponsored by Yad Hanadiv.

Prof. Shai Shen-Orr, of the Rappaport Faculty of Medicine and the conference organizing team, addressed the ongoing efforts to build a cell-centered view of genomic data that can be integrated with primary immunology literature.

Experts from around the world included Prof. Nigam Shah from Stanford University, who described the initiative he leads, which takes data from electronic health records and uses machine learning to help doctors answer clinical questions. Dr. Hannah Bayer, a neuroscientist from New York University, spoke about the HUMAN Project, which studies 10,000 New York City residents over a period of 20 years, tracking everything from financial and social data to environmental and health factors.



Dr. Kira Radinsky

{ *in the world:* **JACOBS TECHNION-CORNELL INSTITUTE** }

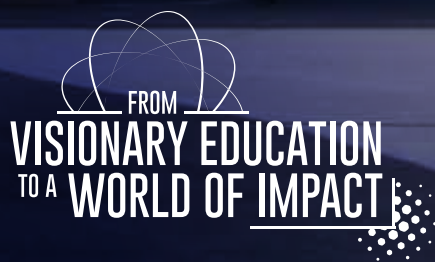
# Bringing NY Back to the Future

## GLOBAL CONVERSATION

September 2017 saw the historic inauguration of a global campus on Roosevelt Island in New York City. Over 500 guests were present for the official opening of the innovation hive of the future: Cornell Tech and the Jacobs Technion-Cornell Institute. Guests included Mayor Bill de Blasio, Gov. Andrew Cuomo, former Mayor Michael Bloomberg, Cornell University President Martha Pollack and Technion President Peretz Lavie.

"It's ambitious — it was almost an audacious dream when we started," said Gov. Andrew Cuomo, prior to the ribbon-cutting ceremony. "In many ways, this project helps bring New York City back to the future," said project visionary Michael Bloomberg.

President Peretz Lavie recalled thinking the Israeli institute had a slim chance of winning the bid. "Since we have such a slim chance of winning — be wild," he recalled telling the Technion team. "Use your imagination, think outside the box."







# **CORNELL TECH**

**HOME OF THE JACOBS  
TECHNION-CORNELL  
INSTITUTE**

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**CAMPUS DIRECTORY**



conversation:  
{ **GUANGDONG TECHNION IIT** }



# Elucidating Experience

GLOBAL CONVERSATION

FROM  
VISIONARY EDUCATION  
TO A WORLD OF IMPACT

Li Ka-shing / “Vision is perhaps our greatest strength... it has kept us alive to the power and continuity of thought through the centuries, it makes us peer into the future and lends shape to the unknown.”



(L-R): Mayor of Shantou Zheng Jiange, Technion President Peretz Lavie, Director of the Li Ka Shing Foundation Richard Li, GTIIT Vice Chancellor Nobel Laureate Aaron Ciechanover, Consul General of Israel in Guangzhou Nadav Cohen, Vice-Governor of Guangdong Province Huang Ningsheng, Former Governor of Guangdong Province Zhu Xiaodan, Honorary Chairman of the Shantou University Council Li Ka-Shing, Secretary of the CPC Shantou Chen Liangxian, GTIIT Chancellor Li Jiange, Chair of Planning Committee Yaffa Zilbershats, STU President Jiang Hong

The Guangdong Technion-Israel Institute of Technology (GTIIT) was officially inaugurated in December 2017 in Shantou, China. GTIIT is an historic partnership between the Li Ka Shing Foundation, the Guangdong Provincial Government, the Shantou Municipal Government and the Technion - Israel Institute of Technology. It will train an elite cadre of scientists and engineers, and will also promote cooperation between Shantou University and Technion.

The new campus covers 100,000 square meters and includes 13 buildings, 29 classrooms, 14 teaching laboratories and 55 research laboratories. Six buildings serve as dormitories for students and faculty. GTIIT is expected to train approximately

3,000 students in its first decade, including 300 postgraduates. In the current academic year, there are already 216 students studying at GTIIT.

"China offers Technion a broad platform to realize its academic excellence. We in turn must learn from Technion and Israel as to what innovative thinking is," said GTIIT Chancellor Li Jiange at the festive ceremony.



**40  
YRS**



#### **40 YEARS OF THE LEMPEL-ZIV ALGORITHM**

In 1977, Profs. Jacob Ziv and Prof. Abraham Lempel introduced the math that would enable lossless compression regardless of the structure of data and without prior knowledge of statistical properties. Many compression technologies used in memory devices, computers, and smartphones are based on this algorithm. In 2017, the achievement was honored with the EMET Prize.



#### **2018 UMBRELLA CONFERENCE**

The 32nd Umbrella Symposium on Energy Conversion and Storage was held at the Technion with the participation of researchers from Jülich Research Center and from RWTH Aachen University in Germany. The conference took place under the auspices of the Grand Technion Energy Program (GTEP).



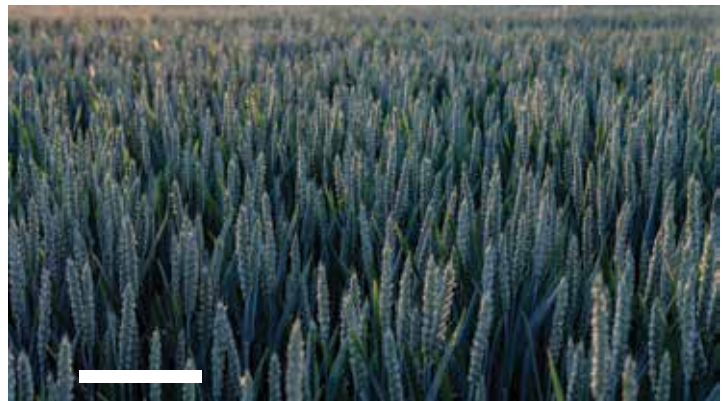
#### **NANO SWIMMERS**

An interdisciplinary study has introduced the optimal configuration for nanoscale robots that travel within the human body for biomedical tasks. The team was led by Prof. Alex Leshansky of the Wolfson Faculty of Chemical Engineering.



#### **TWEETING HAPPINESS**

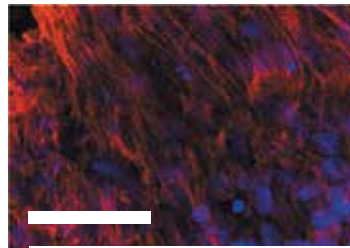
Research performed as part of the doctoral work of Ben Galon, under the supervision of Dr. Yaron Kanza of AT&T Research Laboratories, and Prof. Yerach Doytsher of the Technion Faculty of Civil and Environmental Engineering has introduced a method that analyzes social media posts to map emotions in urban spaces.



#### **HEAL THE YIELD**

An innovative technology developed at the Laboratory for Targeted Drug Delivery and Personalized Medicine Technologies at the Wolfson Faculty of Chemical Engineering by Prof. Avi Schroeder and colleagues is expected to significantly increase agricultural yields. This will be achieved using a nanometric transport platform, which was until now applied in medicine.





# 20 YRS

## 20TH ANNIVERSARY OF THE ISOLATION OF HUMAN EMBRYONIC STEM CELLS

20 years ago, in 1998, Prof. Itskovitz-Eldor, in collaboration with Prof. James Thomson from the University of Wisconsin, isolated the first human embryonic stem cells (hESCs). This is considered one of the most important scientific breakthroughs in medical history. In the same year, Prof. Itskovitz-Eldor established the first stem cell research laboratory at the Rappaport Faculty of Medicine at Technion. Prof. Itskovitz-Eldor currently holds the largest number of scientific publications in the field of hESCs.



## YONINA ELДАР ELECTED TO THE ACADEMY

Prof. Yonina Eldar, second from left, of Technion's Viterbi Faculty of Electrical Engineering was elected to the Israel Academy of Sciences and Humanities in December – making her one of only five women scientists in this prestigious institution and the youngest member.



## DOES GOLD REMEMBER?

Researchers from Technion, led by Prof. Eugen Rabkin, with German colleagues have demonstrated the phenomena of shape memory and self-healing in gold microparticles. The discovery could lead to robots capable of self-repair; and mechanically stable and damage-tolerant components and devices.



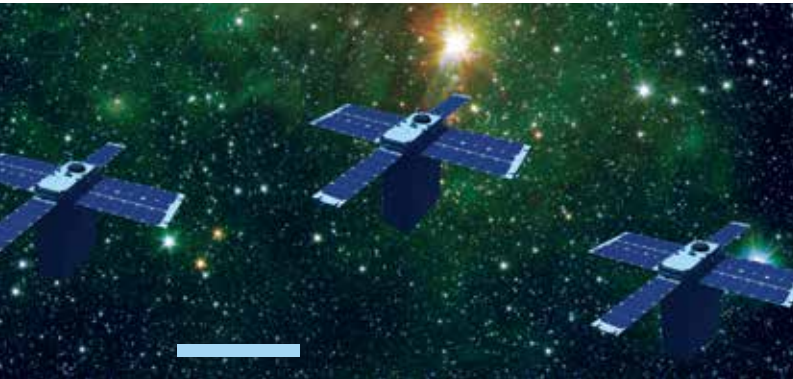
## THE BRAIN'S LEARNING ORCHESTRA

New faculty recruit Prof. Tzipi Horowitz-Kraus is pioneering insight into the early diagnosis and customized treatment of dyslexia. The research is conducted out of the Educational Neuroimaging Center at the Faculty of Education in Science and Technology – the first of its kind in Israel.



## SUPPRESSING THE RESISTANCE

Advancing the field of customized medicine through nanotechnology, Prof. Shulamit Levenberg and team have developed a system that enables the rapid and accurate customization of an antibiotic to the patient.



### COUNTDOWN TO SAMSON LAUNCH

Technion announced that in late 2018, a group of three nanosatellites, which will fly in controlled formation, will be launched for the first time into space. The ADELIS-SAMSON Project, headed by Prof. Pini Gurfil, is supported by the Adelis Foundation and the Israel Space Agency.



### CATS COUNTER HIV

Feline AIDS or FIV gives clues in how to counter human AIDS. Prof. Akram Alian and Dr. Meytal Galilee from the Faculty of Biology are using FIV to uncover the mechanism of viral resistance to anti-reverse transcriptase drugs. Their findings, published in *PLOS Pathogens*, show that the FIV protein forms a closed pocket that blocks the drugs from effective binding.



### AUTONOMOUS VEHICLES FOR SCHOOLCHILDREN

More than 1,000 students from Israel, the US, Argentina, Mexico, Russia, and Ukraine took part in the ninth Technion Robotraffic contest, named for Nadav Shoham. Hosted by the Technion's Leumi Robotics Center, the contest challenges high school students to build autonomous vehicles that are required to perform tasks on a simulated road.



### TECHNOBRAIN - THE EGG COPTER RETURNS

Led by 85-year-old Yishai Zimmerman, the Zimmerman family from Kibbutz Ein Harod Ichud won the Doctor Bob 2018 TechnoBrain competition by successfully designing a device for dropping raw eggs from 40 meters. The 14 teams were judged according to several criteria: the number of eggs that reached the ground intact; the percentage of eggs that didn't break; speed; how close the device landed to the target; and design. TechnoBrain was created in 1997 by the late Neev-Ya Durban.

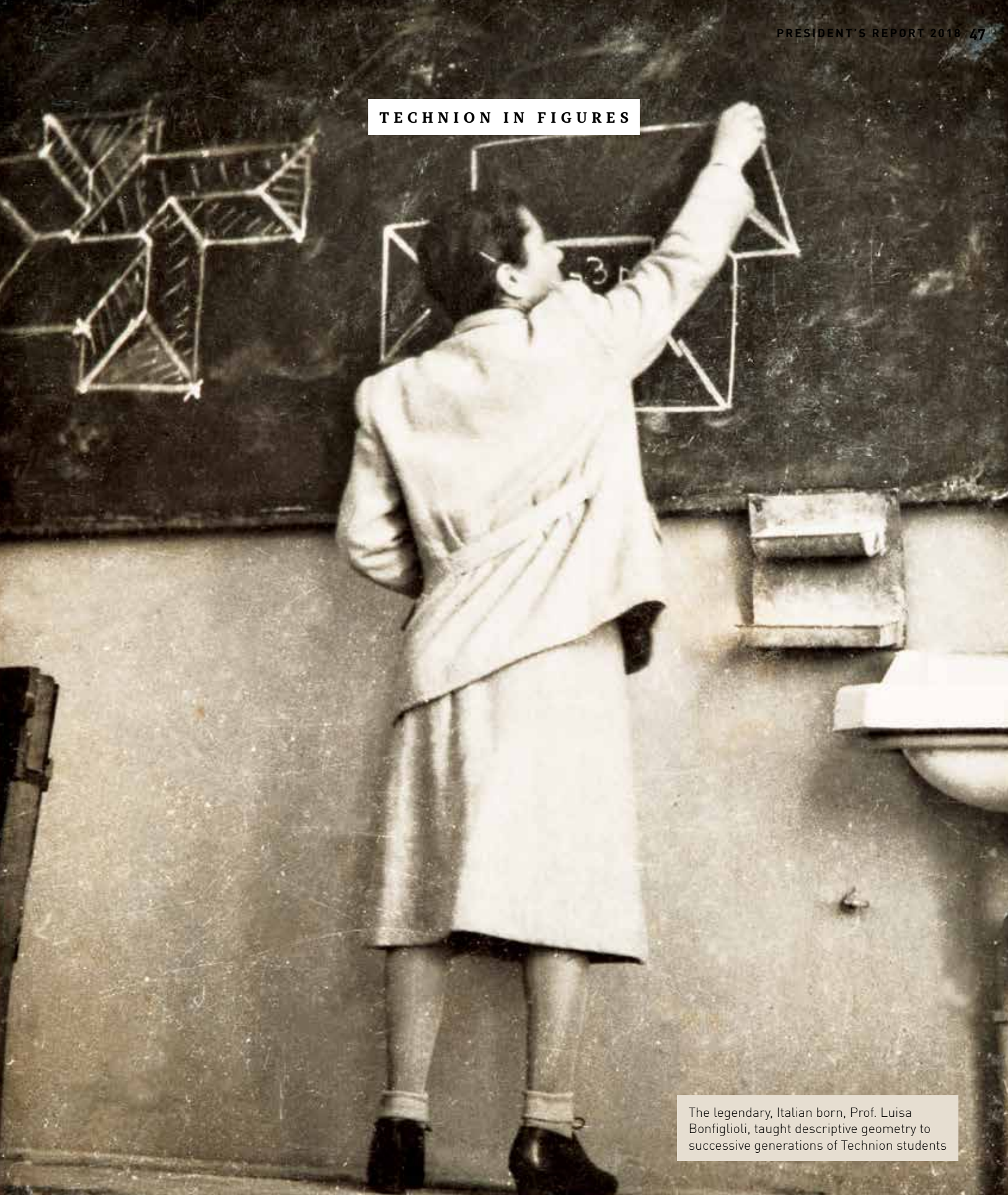


### SHOOT FOR MARS

Six "astronauts" have entered a structure designed by Technion students in order to simulate life on Mars. The building was erected near the town of Mitzpe Ramon in the Negev desert as a first step in the establishment of a space simulation center.



## TECHNION IN FIGURES



The legendary, Italian born, Prof. Luisa Bonfiglioli, taught descriptive geometry to successive generations of Technion students



# GIVING 2017 - 2018

## GUARDIANS

TECHNION GUARDIANS HAVE MADE  
THE HIGHEST LEVEL OF COMMITMENT  
TO THE INSTITUTE

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NATHAN ADLER STIER, *ARGENTINA*

AVRAHAM AND PATRICIA ASHKENAZI, *VA, USA*

YAACOV AND BATYA KOTLICKI, *TEL AVIV, ISRAEL*

ROBERT AND RUTH MAGID, *SYDNEY, AUSTRALIA*

MIRIAM MALACH, *NY, USA*

RAFI (RAPHAEL) MEHOUDAR, *TEL AVIV, ISRAEL*

NAOMI AND JON NEWMAN, *WA, USA*

## GIVING 2017 - 2018

### GIFTS

**A.A.G.** Trust Gift for Eco-Friendly Recycling through Mechanochemistry

Steven **Abramson** Fund to Support Prof. Eisen's Water Research

**Adelis** Fund Brain Research Award

**Adelis** Fund Gift to Study the Impact of Acupuncture on Quality of Life in Cancer Patients

**Arcadya** Charitable Fund Gift to the President's Discretionary Fund

Avie and Sarah **Arenson** Israeli Built Heritage Research Center

**Azrieli** Bioinformatics Core

**Azrieli** Faculty Fellowship Program

Randy L. and Melvin R. **Berlin** Fund for Homeland Security Research

Russell **Berrie** Foundation Equipment Fund for RBNI

Rodica and Paul **Burg** Faculty Recruitment Fund

Gift of the Estate of Prof. David Bernard **Casson** for Churchill Plaza Renovation

**Check Point** Software Technologies Ltd. Gift to First Israel

**Firefly** Scientists Foundation Fund for Applied Research with Commercial Potential

**Firefly** Scientists Foundation Fund for Design School Feasibility Study

**Firefly** Scientists Foundation Fund Equipment Fund for Prof. Shpigelman

**Firefly** Scientists Foundation Fund for Undergraduate Design Courses

Laura Gurwin **Flug** Family Fund for the Research of Engineering Foods towards Optimal Cancer Chemoprevention

Laura Gurwin **Flug** Family Fund for the Research of Rational Engineering of Insect Proteins for Age-Tailored Functional Foods

Naomi **Fromstein** Gift to Support the Technion Global Engineering Center

Boruch **Frusztajer** Gift to Support Research in Quantum Science, Matter and Engineering

**Fujiwara** Cyber Security Research Center

Gene and Jerome **Hankin** Apartment in the Undergraduate Student Village

Sandy **Hittman** Fund for the Undergraduate Student Village

**Julis** Urban Life Fund at JTCl

Philip and Harriet **Klein** Foundation Fund for the Undergraduate Student Village

Gitta and Saul **Kurlat** Research Fund on the Roles of Ubiquitin System in Controlling Cell Division

Harry and Yvonne **Lenart** Charitable Foundation Gift to Support Prof. Machluf's Research

Sam **Lernik** Trust Gift for Research and Teaching Infrastructure

Sonia T. **Marschak** Academic Chair in Humanities and Arts

Vera Glanc **Mellner**, Celia Feldman Mellner and Samuel Nathan Mellner Memorial Fund

Melvyn and Carolyn **Miller** Fund for Innovation

Edwards **Miller** Gift to Support Recruitment of Prof. Osovski

Alfred **Munzer** Fund for Rabin Bulding Patio

Hubert **Nassau** Floor in the Undergraduate Student Village

Allen and Jewel **Prince** Theater

Eddie and Marianna **Ravinovitch** Stem Cell Research Fund for Cardiac Arrhythmias

Roslyn and Leonard **Rosen** Apartment in the Morton and Beverley Rechler Family Foundation Dormitory

**Rosman** Family Fund for the Undergraduate Student Village

Stanley and Tanya **Rosby** Fund for Scientific Research

Julia and Joshua **Ruch** Gift to Jacobs Technion Cornell Institute Director's Discretionary Fund

Julia and Joshua **Ruch** Gift to Support Runway Startup Postdoc Program at JTCl

S. Lyon **Sachs** Gift to Support Joint Metabolomics Research

**Sagol** Center for Intelligent Composite Materials

**Sagol** Building

**Seiden** Family Workshops

Isaiah **Shavitt** Memorial Fund for Quantum Chemistry

Robert J. **Shillman** Fund for Image Processing Research

**Technion UK** Gift for Entrance Lobby in the International Study Center

Talma and Joseph **Vardi** Gift to Support Technion's Education Programs for Special Sectors

**Weinberg** Fund for Neurodegenerative Disease Research

Benjamin **Wygodny** Gift to the Technion Global Engineering Center

**Yad Hanadiv** Foundation Gift to the National Pathogen Genomics Center

Aliza **Yamini** Research Fund in Nanotechnology

### FELLOWSHIPS

Elinor and Norman **Belfer** Fellows Program

Gift from the Estate of Kurt **Ekler** for Fellowships in Medical Engineering

**Gordon** Fellowship Fund

**Korman** Fellowship Fund at JTCl

Artur and Phyllis R. **Mager** Scholarship and Fellowship Fund

Marvin **Reinstein** Fellowship Fund in the Faculty of Physics

Rose L. and Sidney N. **Shure** Fellowship Fund

Raymond N. **Shwake** Master's Degree Fellowship Fund

Martin and Sylvia **Yohalem** Fellowship and Scholarship Fund

### SCHOLARSHIPS

**Dormont** Scholarship Fund

**Elkind** Scholarship Fund

Maria and William **Herskovic** Scholarship Fund

Leon **Katz** Scholarship Fund

Scholarship Fund in Memory of Doris and Walter **Labecki**

Peter and Steven **Sebestyen** Scholarship Fund

Shyrlie **Shriberg** Memorial Scholarship Fund

A complete list of giving is available at: [presidentsreport.technion.ac.il](http://presidentsreport.technion.ac.il)

## GUARDIANS

Technion Guardians have made the highest level of commitment to the Institute

- A** Menachem and Carmela Abraham, MA, USA  
Adelis Foundation, France  
Dr. Miriam and Sheldon G. Adelson Medical Research Foundation, MA USA  
Catherine and Frederick R. Adler, NY & FL, USA  
Nathan Adler Stier, Argentina  
Alon Family Foundation, CA, USA  
Paul and Sherry Altura, CA, USA  
Maurice Amado Foundation, CA, USA  
Amdocs (Israel) Ltd.  
Annenberg Foundation, PA, USA  
Carl and Iris Barrel Apfel, FL, USA  
Applied Materials Foundation, CA, USA  
Eng. Paul S. Arieli (Goldschmidt) and Dr May Arieli, Israel  
Arison Foundation, FL, USA / Tel Aviv, Israel  
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 Dr. J. Franck, 1953  
 Reinhard Frank, 2009  
 Thomas L. Friedman, 2008  
 Dr. Dov Frohman, 1995  
 Prof. Gilbert F. Froment, 1984

### G

Uzia Galil, 1977  
 Dr. Jacob M. Geist, 1987  
 Mark Gelfand, 2011  
 Raya Gensler, 2002  
 Emmanuel Gill, 1994  
 Arthur Gilbert, 1999  
 Benno Gitter, 1991  
 Prof. Israel Gohberg, 2008  
 Alexander Goldberg, 1975  
 Edward R. Goldberg, 1990  
 Dr. Emanuel Goldberg, 1957  
 Gary Goldberg, 2012

Joan Goldberg Arbuse, 1987  
 Prof. Jose Goldemberg, 1991  
 Prof. Richard Goldstein, 1994  
 Dr. Sydney Goldstein, 1969  
 Prof. Solomon W. Golomb, 2011  
 Prof. Graham C. Goodwin, 2006  
 Dr. Bernard Gordon, 2005  
 Stephen Grand, 2010  
 Doreen Brown Green, 2014  
 Joseph Gruss, 1989  
 Joseph Gurwin, 2004

### H

Prof. Peter Haasen, 1993  
 Homer Harvey, 1989  
 Dr. George H. Heilmeier, 1997  
 Michael Heller, 2010  
 President Chaim Herzog, 1987  
 Sandy Hittman, 2015  
 Dr. Christian Hodler, 1998  
 Dr. Nicholas J. Hoff, 1980  
 Dr. Alan Hoffman, 1986  
 Prof. Roald Hoffmann, 1996  
 Prof. Robert Hofstadter, 1985  
 Gen. (Res.) Amos Horev, 1984  
 Dr. F. Houphouet-Biigny, 1962  
 Eli Hurwitz, 1990

### I

Isin Ivanier, 1981  
 Gen. (Res.) David Ivry, 1996

### J

Lawrence S. Jackier, 2004  
 Dr Irwin M. Jacobs, 2000  
 Ludwig Jesselson, 1988  
 HE David Johnston, 2016  
 Prof. Joshua Jortner, 2005  
 Prof. Michel Juvet, 1991

### K

D. Dan Kahn, 2011  
 Prof. Thomas Kailath, 2011  
 Dean Kamen, 2015  
 Sanford Kaplan, 1995

Dr. Shlomo Kaplansky, 1950  
 Dani Karavan, 2009  
 Prof. Marcus Karel, 1991  
 Prof. Samuel Karlin, 1985  
 Prof. Theodore von Karman, 1951  
 Prof. Richard M. Karp, 1989  
 Prof. Alfred Kastler, 1983  
 Prof. Ephraim Katzir, 1983  
 Martin Kellner, 1985  
 Michael Kennedy Leigh, 1983  
 Moshe Keret, 2000  
 Dr. Laurence R. Klein, 1982  
 Philip E. Klein, 2004  
 Prof. Leonard Kleinrock, 2010  
 Prof. Sir Aaron Klug, F.R.S., 1989  
 Teddy Kollek, 1994  
 Prof. Karl Ludwig Kompa, 1995  
 Sidney Konigsberg, 2002  
 Yaacov Kotlicki, 2011  
 Theodore H. Kregel, 2001

### L

Frank R. Lautenberg, 1984  
 Benny Landa, 2004  
 Justice Moshe Landau, 1980  
 Prof. Rolf W. Landauer, 1991  
 Prof. Robert S. Langer, 1997  
 Dr. Stephen A. Laser, 2009  
 David Laskov, 1975  
 Dov Lautman, 1995  
 Prof. Jean Marie Lehn, 2009  
 François Leotard, 1992  
 Dr. Richard A. Lerner, 2001  
 William Lester, 1999  
 Gustave Leven, 1991  
 Hubert Leven, 2005  
 Prof. Michael Levitt, 2015  
 Prof. Jacques Lewiner, 2016  
 Emanuel Zvi Liban, 2017  
 Israel Libertovsky, 1987  
 Arch. Daniel Libeskind, 2008  
 Eric Lidow, 1984  
 Prof. Anders Lindquist, 2010  
 Robert Lirmit, 1960  
 Sir Ben Lockspeiser, 1952  
 Lorry I. Lokey, 2007

\* Including Doctor of Architecture, Doctor of Science, Doctor of Science in Technology, Honorary Doctor, Honorary Doctor of Science

Dr. Walter C. Lowdermilk, 1952  
Prof. Robert E. Lucas, Jr., 1996

## M

Prof. Thomas L. Magnanti, 2007  
Alexandre Mallat, 2002  
Alfred E. Mann, 2005  
Galia Maor, 2010  
Harold Marcus, 2012  
Prof. Rudolph A. Marcus, 1998

Dr. Herman F. Mark, 1975  
Prof. Krzysztof Matyjaszewski, 2015  
Dr. Dan Maydan, 2001  
Raphael Mehoudar, 2014  
Zubin Mehta, 2013  
Etia Meilichson, 1997  
Prof. Angelo Miele, 1992  
Dr. Hyman Mitchner, 2010  
Gen (Res.) Amram Mitzna, 2010  
Dr. A. I. (Ed) Mlavsky, 1994  
Dov Moran, 2016  
Martin Paul Moshal, 2017  
Prof. Benno Müller-Hill, 2000  
Peter Munk, 2001  
Dr. J. Fraser Mustard, 1995

## N

Avinoam Naor (Aharonovich), 2008  
Ruth Leventhal Nathanson, 2010  
Samuel Neaman, 1982  
Dr. Yuval Ne'eman, 1966  
Shlomo Nehama, 2006  
Robert Neter, 1999  
Joseph Neubauer, 2017  
Dr. Caroll V. Newsom, 1958  
Itzhak Nissan, 2012  
M. Novomeysky, 1957

## O

Harry Oppenheimer, 1989  
Dr. Eli Oppen, 2012  
Prof. Simon Ostrach, 1986

## P

Prof. Amnon Pazy, 2006  
Lois Peltz, 2006  
Dr. Arno A. Penzias, 1986  
Shimon Peres MK, 1985  
Prof. Lev Pitaevskii, 2010  
David Polak, 2009  
Israel Pollack, 1993  
Rachel Pollak, 2005  
Manes Pratt, 1968  
Dan Propper, 1999

## R

Dr. I. I. Rabi, 1963  
Yitzhak Rabin MK, 1990  
Prof. Seymour Rabinowitz, 1991  
Bruce Rappaport, 1979  
Ruth Rappaport, 2014  
Dr. Johannes Rau, 2000  
Leon Y. Recanati, 1999  
Arnold Recht, 1999  
Prof. L. Rafael Reif, 2017  
Prof. James R. Rice, 2005  
Hershel Rich, 1998  
Dr. L. A. Richards, 1952  
Louis B. Rogow, 1988  
Barrie Rose, 2000  
Daniel Rose, 2013  
David Rose, 1961  
Edward E. Rosen, 1966  
Maurice M. Rosen, 1978  
Prof. Azriel Rosenfeld, 2004  
Prof. Alvin E. Roth, 2013  
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Sir Evelyn de Rothschild, 1982  
Lord Rothschild, 1968

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Dr. Henry Samuelli, 2005  
George Sarton, 1953  
Ed Satell, 2016  
Prof. Harold A. Scheraga, 1993  
Dr. M. Schiffer, 1972  
Maximilian Schlomiuk, 1989  
Michael Schor, 1985  
Seymour Schulich, 2007  
Prof. Helmut Schwarz, 2000

Al Schwimmer, 1968  
Joan Seidel, 2012  
Norman Seiden, 1986  
J. R. Sensibar, 1963  
Dr. Donna Shalala, 1994  
Prof. Rachel Shalon, 1988  
Prof. Ascher H. Shapiro, 1985  
Max Shein, 1993  
Irving A. Shepard, 2001  
Dr. Bernard Sherman, 2004  
Leonard H. Sherman, 1994  
Stanley Shirvan, 2006  
Avraham B. Shochat, 2002  
George P. Shultz, 1992  
Gil Shwed, 2004  
Ramie Silbert, 1996  
Julius Silver, 1971  
Prof. Barry Simon, 1999  
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Haim Slavin, 1958  
Prof. Richard E. Smalley, 2004

Prof. Louis D. Smullin, 1986  
Dr. Solomon H. Snyder, 2002  
Michael Sobol, 1980  
Jonathan Sonnis, 2008  
Ben Sosewitz, 1999  
Prof. Jason L. Speyer, 2013  
Dr. Philip Sporn, 1960  
Prof. Günter Spur, 2012  
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Eugene Stearns, 1986  
Harry J. Stern, 2000  
Prof. Eli Sternberg, 1984  
Ing. Isaac (Eddie) Streifler Shavit, 2003  
Prof. Werner Stumm, 1989  
Prof. Nam Pyo Suh, 2007  
Dr. Avraham Suhami, 1981  
Albert Sweet, 2014  
Gerard Swope, 1957  
Joseph Szydlowski, 1984

## T

Joseph Tanenbaum, 2007  
Henry Taub, 1983  
Marilyn Taub, 2014  
PM Margaret Thatcher, 1989  
Prof. Edwin L. Thomas, 2016

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Gen. Dan Tolkowsky, 1982  
Sam B. Topf, 1992  
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Abraham Tulin, 1957

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Jacob W. Ullmann, 1980  
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Dr. Yossi Vardi, 2009  
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Dr. Selman A. Waksman, 1966  
Eyal Waldman, 2016  
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Aharon Weiner, 1971  
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Eitan Wertheimer, 2011  
Stef Wertheimer, 1992  
Lewis Weston, 1996  
Prof. Elie Wiesel, 2005  
Dr. Eugene Paul Wigner, 1971  
Dr. Shmuel Winograd, 1992  
Ben Winters, 1993  
Dr. J. Wolfowitz, 1972  
Lord Leonard Wolfson, 1995  
Prof. Chi-Huey Wong, 2007  
Dr. Robert B. Woodward, 1966  
J. W. Wunsch, 1955

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Prof. Rosalyn Sussman Yalow, 1989  
Moshe Yanai, 2012  
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Dr. Felix Zandman, 1997  
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Carl Alpert, 1988  
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Alfred J. Bär, 1995  
Moshe Bar-Ilan, 1995  
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Sarah Baruchin, 1986  
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Jack Bellock, 2000  
Norman Belmonte, 1997  
Louis Benjamin, 1986  
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Evelyn Berger, 2001  
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Stephen Berger, 1982  
Sondra Berk, 2014  
Samuel M. Bernstein, 1975  
S. J. Birn, 1965  
Franklin G. Bishop, 1991  
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Morley Blankstein, 1981  
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 Melvyn H. Bloom, 1993  
 Harry J. F. Bloomfield, Q.C.,  
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 Ilse Blumenfeld, 2009  
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 Rebecca Boukhris, 2015  
 David Brecher, 2004  
 Frances Brody, 1992  
 Gen. (Res.) Shlomo  
 Burstein-Inbar, 2008  
 Marshall Butler, 1994

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 Joan Callner Miller, 1984  
 Dr Coleman Caplovitz, 2007  
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 Benjamin Carasso, 2004  
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 Yoel Carasso, 2007  
 Stanley Chais, 2002  
 Leona Chanin, 2004  
 Paul Chanin, 1993  
 Jack Chisvin, 1983  
 Frances Cohen, 1984  
 Simcha Cohen-Stern, 1999  
 Hans Cohn, 2003  
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 Cohen, 1983  
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 Sydney Cooper, 1988  
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 Jeffery Cosiol, 2012

**D**  
 Jeannette Dankner, 2005  
 Robert Davidow, 1997  
 Oscar Davis, 2011  
 Albert Deloro, 2014  
 André Deloro, 2009  
 Brent Dibner, 2013  
 David Dibner, 2001  
 Prof. Dr Ing. Ulrich  
 Draugelates, 2002  
 Max Dresher, 1985  
 Jerome Drexler, 1999  
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 Zvi Dvoresky, 1993

Dr. Isaac Dvoretzky, 2006  
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 Louis Edelstein, 1995  
 Dr. George Elbaum, 2016  
 Anna Tulin Elyachar, 1983  
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 Rita Emerson, 2016  
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 Dr Joseph N. Epel, 1987  
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 Aaron Etra, 2004  
 Joseph K. Even, 1991

**F**  
 Yekutiel Federmann, 1978  
 Israel Feldman, 1992  
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 Elias Fife, 1955  
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 Fausta Finzi Carli, 2011  
 Edith Fischer, 2001  
 Ruth Elaine Flinkman-  
 Marandy, 2012  
 Benjamin Fohrman, 1991  
 Rudolph Forchheimer, 1997  
 Alan Forman, 2005  
 Reinhard Frank, 2004  
 Benjamin Free, 1991  
 Joseph Freed, 1998  
 David Friedman, 2001  
 Jerry Friedman, 1993  
 Michael Frieze, 2000  
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 Samuel Fryer, 1959

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 Mark Gaines, 2017  
 Dr. Terry Gardner, 2017  
 Mark Gelfand, 2008  
 Samuel Geltman, 1998  
 Raya Gensler, 1994  
 Moshe Bernard Gitter, 1979  
 Dr. Amit Goffer, 2015  
 Aviva Goldberg, 2010  
 Gary Goldberg, 2005  
 Nathan Goldberg, 1977  
 Joan Goldberg Arbuse, 1982

Nathan Max Goldman, 1992  
 Horace W. Goldsmith, 1975  
 Ing. Aharon Goldstein, 1971  
 Salomon Gottesfeld, 1985  
 Ben-Ami Gov, 2010  
 Salman Grand, 1986  
 Doreen Green, 2000  
 Irving Greenberg, 1990  
 Marguerite Greenberg,  
 2000  
 Coleman Kenneth  
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 Chaim M. Gringlas, 1989  
 Irwin L. Gross, 2007  
 Josef Gruenblat, 1979  
 Joseph Gurwin, 1996  
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 1994  
 Aaron Gutwirth, 1978

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 Uzi Halevy, 2014  
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 Tamara Handelsman, 1998  
 Robert Hanisee, 2016  
 Burt I. Harris, 1987  
 Louis Harris, 1988  
 Lawrence Harvey, 1977  
 Leo M. Harvey, 1972  
 Alexander Hassan, 1975  
 Max Hecker, 1954  
 Tess Heffner, 1994  
 Michael Heller, 2002  
 Rose Herrmann, 1978  
 Sandy Hittman, 2009  
 Dr. Christian Hodler, 1994  
 Ruth Hoenich, 2001  
 Zeev Holtzman, 2016  
 Charles Housen, 1997

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 Ivoncy Ioschpe, 1997  
 Dr. Jacob Isler, 1970  
 Ing. Shaul Ivtsan, 2006

**J**  
 Joseph H. Jackier, 1985  
 Lawrence Jackier, 2000  
 Jacobs K. Javits, 1973

Martin Jelin, 1985  
 Ludwig Jesselson, 1973  
 Anatol Josepho, 1980  
 Prof. Eliahu I. Jury, 2001  
**K**  
 D. Dan Kahn, 2006  
 Shmuel Kantor, 1989  
 Daniel Karp, 1994  
 Eyal Kaplan, 2016  
 Dr. Albert A. Kaufman, 1991  
 Dorothy Kellner, 1999  
 Leon Kempler OAM, 2008  
 Adelaide Kennedy Leigh,  
 1991  
 Michael Kennedy Leigh,  
 1975  
 Avi Kerbs, 2015  
 Nathan Kirsch, 1984  
 Michael Klein, 2010  
 Philip E. Klein, 1998  
 Stephen B. Klein, 2016  
 Sidney Konigsberg, 1997  
 Alexander Konoff, 1949  
 Richard Aaron Koplow, 1992  
 Yaacov Kotlicki, 2006  
 Abba Kramer, 1988  
 Theodore Krengel, 1984  
 Reuben Kunin, 1991

**L**  
 Yeschayahu Landau, 1992  
 Ing. Zvi Langer, 1981  
 Dr. Stephen A. Laser, 2003  
 Ron Lazarovits, 2013  
 Scott Leemaster, 2009  
 Sidney Lejfer, 2011  
 Prof. Yossi Leshem, 2017  
 William Lester, 1991  
 Avraham Lev, 1976  
 Ruth Leventhal  
 Nathanson, 2007  
 Charles Levin, 2010  
 Prof. Jacques Lewiner, 2006  
 Leon Lidow, 1976  
 Prof. Asger Lindegaard-  
 Andersen, 1995  
 Louis L. Lockshin, 1979  
 Trudy Louis, 1994

**M**  
 Louis Bernard Magil, 1983  
 Alexandre Mallat, 1997  
 Hal Marcus, 2006  
 William Marcus, 1996  
 Dr. Shlomo Markel, 2016  
 Sonia Marschak, 2015  
 Justice Roy Matas, 1981  
 Frank G. Meyer, 2002  
 Pearl Milch, 1980  
 Raphael Mishan, 2012  
 Dr. Hyman Mitchner, 2003  
 Andre Molleson, 1989  
 Monte Monaster, 1989  
 Mark Moshevicz, 1983  
 Prof. Burkhard Müller, 2001  
 Ing. Gen. Robert  
 Munnich, 1985

**N**  
 Ernest Nathan, 1982  
 Albert Nerken, 1992  
 Tzvi Neta, 2009  
 Albert Newman, 1989  
 Yehezkel Nussbaum, 1996

**O**  
 Seniel Ostrow, 1982

**P**  
 Daniel Peltz, 2014  
 Lois Peltz, 2000  
 David Polak, 2001  
 Herbert W. Pollack, 2004  
 Allen Prince, 2015  
 Miriam Pushkar, 2000

**R**  
 Judge Leonard  
 Rabinowitz, 1984  
 Norbert M. Rand, 1997  
 Bennett Rechler, 2009  
 Hannah Rechler  
 Rabinowitz, 2009  
 Arnold Recht, 1994  
 Hershel Rich, 1992  
 Eugene N. Riesman, 1986  
 Joseph Riesman, 1976  
 Morris Rochlin, 2002



Louis Rogow, 1983  
 Prof. Gerd-Volker  
 Röschenhalter, 2012  
 Maurice M. Rosen, 1972  
 Howard Rosenbloom, 2010  
 Shmuel Rotem, 2005  
 Joel Rothman, 2010  
 Gyora Rubinstein, 1997  
 Joshua and Julia Ruch, 2016

## S

Nina Sabban, 2004  
 Eliyahu Sacharov, 1973  
 Edmundo Safdie, 1991  
 Ed Satell, 2011  
 Stefanie Sonia Schreier, 1984  
 Dorothy Schussheim, 1992  
 Alf Schwarcbbaum, 1983  
 Arnold Seidel, 2017  
 Joan Seidel, 2005  
 Norman Seiden, 1979  
 Emanuel Shachar, 1990  
 Uriel Shalon, 1982  
 William Shamban, 1997  
 Andy Shapiro, 2014  
 Dr. Stephen Shapiro, 1993  
 Dr. Zalman M. Shapiro, 1988  
 Maurice Meir Shashoua, 2012  
 Max Shein, 1978  
 Irving A. Shepard, 1988  
 Harry Sheres, 1989  
 Beatrice Sherman, 1982  
 Leonard H. Sherman, 1987  
 Nate Sherman, 1977  
 Norton Sherman, 1996  
 Barnett Shine, 1972  
 Stanley Shirvan, 1999  
 David Silbert, 1984  
 Gerald Silbert, 1993  
 Ramie Silbert, 1988  
 Peter Simon, 1993  
 Cindy Sipkin, 2008  
 Rafael Sirkis, 2011  
 Jack Skodnek, 2006  
 Esther Smidof, 2005  
 Jonathan Sohnis, 2001  
 Ben Sosewitz, 1990  
 Eugene Stearns, 1976

Louis Stein, 1982  
 Senator Paul B.  
 Steinberg, 2012  
 Sir Louis Sterling, 1956  
 Harry Stern, 1993  
 Harry J. Stern, 1996  
 Ivan Stern, 2010  
 Haim Stoessel, 1999  
 Harold M. Stone, 1989  
 Ing. Isaac (Eddie) Streifler  
 Shavit, 1989

Henri Strosberg, 1986  
 Louis Susman, 1980  
 Stanley Sussman, 2011  
 Albert Sweet, 2011  
 Janey Sweet, 2007  
 Richard Swig, 1995  
 Mariane Szego, 2008  
 Sandor Szego, 2008

## T

Victor Tabah, 1973  
 Joseph Tanenbaum, 2000  
 L. Shirley Tark, 1979  
 Henry Taub, 1980  
 Isaac Taylor, 1977  
 Dov Tirosh, 1997  
 Gen. Dan Tolkowsky, 1975  
 Sam Topf, 1983  
 Benjamin B. Torchinsky, 1999  
 Col. Yitzhak Turgeman, 2003

## U

Jacob W. Ullmann, 1972  
 Yona Uspiz, 1994

## V

Clément Vaturi, 1993  
 Dan Vilenski, 2005

## W

Dr. Arthur Wein, 1998  
 Naomi Weiss Newman, 2014  
 K. B. Weissman, 1997  
 Eli Welt, 2002  
 Irving Wenger, 1991

Mary Werksman, 1996  
 Lewis M. Weston, 1987  
 Alexander Whyte, 1972  
 William Wiener, 2005  
 Irma Wigdor, 1984  
 Dan Wind, 1996  
 Ben Winters, 1991  
 Roma Broida Wittcoff, 1992  
 Sir Isaac Wolfson, 1956  
 Sidney Wolberg, 1989  
 The Hon. Laura Wolfson  
 Townsley, 2012  
 Abel Wolman, 1972  
 Joseph W. Wunsch, 1946  
 Susan Raymer and  
 Benjamin Wygodny, 2017

## Y

Solm Yach, 1980  
 Elisha Yanay, 1998  
 Chaim Yaron, 2009

## Z

Shlomo Zabledowitz, 1984  
 Samuel Zabner, 1992

## TECHNION MEDAL

Uzia Galil, 1997  
 Gen. (Res.) Amos Horev, 1996  
 Irwin Jacobs, 2013  
 Martin Kellner, 2005  
 Justice Moshe Landau, 1996  
 Peter Munk, 2013  
 Samuel Neaman, 1997  
 Bruce Rappaport, 1998  
 Haim Rubin, 1997  
 Norman Seiden, 2001  
 Leonard Sherman, 2005  
 Ben Sosewitz, 2008  
 Henry Taub, 1998  
 Dr. Andrew J. Viterbi, 2015  
 Lewis Weston, 2008  
 Mortimer B. Zuckerman, 2016

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 Prof. Vladimir I. Arnold, 1994  
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 Baumeister, 2005  
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 Prof. Charles L. Bennett, 2006  
 Prof. Seymour Benzer, 1977  
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 Blackburn, 1999  
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 Prof. Pierre Chambon, 1987  
 Prof. Claude Cohen-  
 Tannoudji, 1996  
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 Sir Alan Howard Cottrell, 1974  
 Prof. George B. Dantzig, 1985  
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 Prof. Freeman John  
 Dyson, 1977  
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 Prof. Hillel Furstenberg, 1993  
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 Prof. Pierre-Gilles  
 de-Gennes, 1988  
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 Prof. Wayne A.  
 Hendrickson, 2004  
 Prof. Eric Kandel, 1993  
 Prof. Michael Karin, 2010

Prof. Richard Karp, 1998  
 Prof. Marc Kirschner, 2015  
 Prof. George Klein, 1975  
 Prof. Jon M. Kleinberg, 2013  
 Dr. Donald Knuth, 1995  
 Prof. Willem J. Kolff, 1972  
 Prof. Roger D. Kornberg, 1997  
 Prof. Hans W. Kosterlitz, 1981  
 Prof. Eric Lander, 2012  
 Prof. Robert Langer, 2003  
 Prof. Paul C. Lauterbur, 1986  
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 Sir James Lighthill, 1981  
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 Prof. Jacques-Louis Lions, 1991  
 Dr. Benoit B. Mandelbrot, 1989  
 Prof. Herman F. Mark, 1976  
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 Prof. Shuji Nakamura, 2009  
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 Prof. James E. Peebles, 2001  
 Prof. Jacob Polotsky, 1982  
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 Polyakov, 2010  
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 Prof. Barry Sharpless, 1998  
 Dr. Peter Sorokin, 1984  
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Moshe Dunie, USA

Ing. Zvi Dvoresky, Israel

Dr. Shimon Eckhouse, Israel\*

Mooly Eden, Israel

Dr. George Elbaum, USA

J. Steven Emerson, USA

Carol Epstein, USA

Prof. Yuri Estrin, Australia

Irwin Field, USA

Edith Fischer, USA

Ruth Flinkman-Marandy, USA

Alan Forman, USA

Dr. Gilead Fortuna, Israel\*

Prof. Eby Friedman, USA

Iaqueaniello Gaetano, Italy

Mark Gaines, USA

Dr. Terry Gardner, USA

Jacques Garih, France

David Gat, Israel

Yitzhak Gat, Israel

Zohar Gilon, Israel

Dr. Amit Goffer, Israel

Gary Goldberg, Canada

Ben-Ami Gov, Israel

Stephen Grand, USA

Doreen Green, Canada

Daniel Gutenberg, Switzerland

Gal Haber, Israel

Gen. (Res.) Shalom Hagai, Israel\*

Gad Haker, Israel

Robert Hanisee, USA

Sir Michael Heller, UK

Lady Morven Heller, UK

Peter Hersh, Australia

Dr. Victor Hofman, Switzerland

Dr. Irit Idan, Israel\*

Maj. Gen. (Res.) Shlomo

(Burststein) Inbar, Israel

Ing. Shaul Ivtsan, Israel

Dr. Irwin Jacobs, USA

Michael Kagan, Israel

Dr. Shlomo Kalish, Israel

Ronnie Kaplan, Canada

Miri Katz, Israel

Ilana Kaufman, Israel\*

Avi Kerbs, Israel

Moshe Keret, Israel

Michael Klein, USA

Ofer Kotler, Israel

Yaacov Kottlicki, Israel

Kobi Kurtz, Netherlands

Benny Landa, Israel

Yeshayahu Landau, Israel

Dr. Stephen Laser, USA

Ron Lauder, USA

Ron Lazarovits, Australia

Scott Leemaster, USA

Charles Levin, USA

Prof. Jacques Lewiner, France

Moshe Lichtman, Israel

Yoseph Linde, Israel

Lorry I. Lokey, USA

Dr. Yoelle Maarek, Israel\*

Israel Makov, Israel

Prof. Fadel Mansour, Israel\*

Dana Maor, Israel

Joshua Maor, Israel

Inge Marcus, USA

Shlomo Markel, Israel

Dr. Dan Maydan, USA

Aryeh Mergi, Israel

Jonathan Metliss, UK

Giora Meyuhass, Israel

Melvyn Miller, USA

Gary Monnickendam, UK

Dov Moran, Israel

Avinoam Naor, Israel

Shlomo Nehama, Israel

Meir Nissensohn, Israel

Gilad Novik, Israel

Dr. Eli Oppen, Israel

Marvin Ostin, Canada

Dr. Edgar Paltzer, Switzerland

Guido Pardo-Roques, Israel

Daniel Peltz, UK

Lois Peltz, UK

David Perlmutter, Israel

Orni Petrushka, Israel

Eliot Phillipson, Canada

Prof. Guilherme Ary Plonski, Brazil

David Polak, USA

Rina Pridor, Israel\*

Dan Propper, Israel

Irith Rappaport, Israel

Dr. Ruth Ratner, Australia

Leon Recanati, Israel

Arnold Recht, Canada

Shlomo Reisman, Israel

Prof. Dr. Gerd-Volker

Roeschenthaler, Germany

Howard Rosenbloom, USA

Grace Rosman, USA

Martin Rosman, USA

Helio Bruck Rotenberg, Brazil

Joel S. Rothman, USA

Haim Rousso, Israel

Kobi Rozengarten, Israel

Joshua Ruch, USA

Julia Ruch, USA

Nina Sabban, USA

Edmundo Safdie, Brazil

Yoav Sarne, Israel

Prof. Dr. Thomas Scheper, Germany

Benny Schnaider, Israel

Arik Schor, Israel

Yigal Schreiber, Israel

Arie Scope, Israel

Dr. Yoram Sebban, Israel\*

Arnold Seidel, USA

Joan Seidel, USA

Stephen Seiden, USA

Les Seskin, USA

Haim Shani, Israel

Ing. Shaul Shashoua, Brazil

\* Technion Council member

Raphi Shavit, Israel  
 Leonard H. Sherman, USA  
 Dr. Robert Shillman, USA  
 Stanley Shirvan, USA  
 Abraham Shochat, Israel  
 Gadi Singer, Israel  
 Melissa Singer, Canada  
 Rafael Sirkis, Israel  
 Jonathan Sohnis, USA  
 Senator Paul Steinberg, USA  
 Ing. Isaac Eddie Streifler-Shavit, Israel  
 Stefan Stureson, Sweden  
 Prof. Dr. Roderich Suessmuth, Germany  
 Ing. Sandor Szego, Brazil  
 Prof. Zehev Tadmor, Israel  
 Rami Tamir, Israel  
 Ira Taub, USA  
 Irwin Tauben, Canada  
 Gideon Tolkowsky, Israel  
 Itzhak Torgeman, Israel\*  
 Oded Tyrah, Israel  
 Pim Van Den Dam, Netherlands  
 Dr. Yossi Vardi, Israel  
 John Veronis, USA  
 Dan Vilenski, Israel  
 Dr. Andrew Viterbi, USA  
 Dr. Kobi Vortman, Israel  
 Eyal Waldman, Israel  
 Prof. Dr. Peter Weinberger, Austria  
 Arthur A. Weiss, USA  
 Naftali Weitman, Israel  
 Eitan Wertheimer, Israel  
 Avigdor Willenz, Israel  
 Andrea Wolfe, USA  
 Ben Wygodny, Canada  
 Yoram Yaacovi, Israel  
 Danny Yamin, Israel  
 Maj. Gen. (Res.) Shlomo Yanai, Israel  
 Elisha Yanay, Israel  
 Chaim Yaron, Israel\*  
 Dr. Giora Yaron, Israel  
 Imad Younis, Israel\*  
 Avi Zeevi, Israel  
 Yehuda Zisapel, Israel  
 Zohar Zisapel, Israel  
 Miriam Ziv, Israel  
 Dr. Amir Ziv-Av, Israel\*

#### ALTERNATE MEMBERS

Aron Ain, USA  
 Jack Bensimon, Canada  
 Ilene Berger, USA  
 Howard Berish, Canada  
 Serge Bitboul, France  
 James Blum, USA  
 Steve Bramson, Canada  
 Marilyn Caplovitz, USA

Neil Closner, Canada  
 Rita Emerson, USA  
 Rod Feldman, USA  
 Gill Fishman, USA  
 Laura Flug, USA  
 Joseph Freed, USA  
 David Friedman, USA  
 Harold Garfinkle, Canada  
 Dr. Harry Handelsman, USA  
 Tamara Handelsman, USA  
 Jon Hirschtick, USA  
 Evert Jonsson, Sweden  
 Tommy Klatzkow, Sweden  
 Sidney Lejfer, USA  
 William Marcus, USA  
 Steve Merling, Canada  
 Ruth Owades, USA  
 Beth Perlman, USA  
 Paul Raducanu, Canada  
 Bennett Rechler, USA  
 David Ronn, USA  
 Andrea Rush, Canada  
 Eugene B. Shapiro, USA  
 Jozef Stern, Sweden  
 Lauren Veronis, USA  
 Bruce Whizin, USA  
 Roma Wittcoff, USA  
 Dr. Frank Witte, Germany

#### HONORARY LIFE MEMBERS

Moshe Arens, Israel  
 Paul Bernstein, USA  
 Dr. Joel Birnbaum, USA  
 Scott Black, USA  
 Dr. Ilan Blech, USA  
 Robert Brand, USA  
 Leona Chanin, USA  
 Jack Chisvin, Canada  
 Frances Cohen, Canada  
 Elizabeth Corob, UK  
 Jeanette Dankner, Israel  
 Richard Davison, USA  
 Michael Dresner, Israel  
 Prof. Jerome Drexler, USA  
 Prof. George Feher, USA  
 Meyer Frank G., USA  
 Dr. Avi Friedman, Canada  
 Michael Frieze, USA  
 Pearl Gameroff, Canada  
 Edward R. Goldberg, USA  
 Sofia L. de Grimberg, Argentina  
 Gary Gross, USA  
 Jack Hahn, Canada  
 Dr. Michael Helper, Canada  
 Dr. Christian Hodler, Germany  
 Charles Housen, USA  
 Ivoncy B. Ioschpe, Brazil

Maggie Kaplan, USA  
 Barbara Kay, USA  
 Nathan Kirsh, South Africa  
 Stephen B. Klein, USA  
 Theodore H. Kregel, USA  
 Alexander Lidow, USA  
 Bernard Mars, USA  
 Louis Milgrom, USA  
 Raphael Mishan, USA  
 Jonathan Mitchell, USA  
 Dr. Hyman Mitchner, USA  
 Ruth Leventhal Nathanson, USA  
 Parviz Nazarian, USA  
 Justice Shoshana Netanyahu, Israel  
 Prof. Dr. Ewald Nowotny, Austria  
 Samuel Pissar, France  
 Herbert Pollack, USA  
 Rachel Pollak, Israel  
 Eugene Riesman, Canada  
 Morris Rochlin, USA  
 Barrie Rose, Canada  
 Daniel Rose, USA  
 Elihu Rose, USA  
 Shmuel Rotem, Israel  
 Eric Samson, South Africa  
 Paul Shatz, USA  
 Sholom Shefferman, USA  
 Harry Sheres, Canada  
 Emanuel Shimoni, Israel  
 Abe Simkin, Canada  
 Janey Sweet, USA  
 Bernice Tanenbaum, USA  
 Gen. (Res.) Dan Tolkowsky, Israel  
 Lucy Ullmann, USA  
 Yona Uspiz, Israel  
 François Wasservogel, France  
 Mary Werksman, USA  
 Stef Wertheimer, Israel  
 Estelle Yach, South Africa  
 Ruth Ziegler, USA  
 Robert Zinn, USA

#### REPRESENTATIVES OF GROUPS AND ORGANIZATIONS

#### JEWISH AGENCY

Alan Hoffman

#### ASSOCIATION OF ENGINEERS AND ARCHITECTS

Simcha Afek  
 Amnon Bartal  
 Emanuel Zvi Liban

#### ISRAEL ACADEMY OF SCIENCES AND HUMANITIES

Prof. Yaron Silberberg

#### ALUMNI ASSOCIATION

Eyal Kaplan\*  
 Dr. Ilana Maor

#### PROFESSORS

Prof. Ariel Orda\*  
 Prof. Yehuda Pinchover\*

#### PROFESSORS EMERITI

Prof. Abraham Berman

#### TEACHING STAFF UNION

Aviv Sharon

#### FACULTY ASSOCIATION

Prof. Eyal Zussman

#### ORGANIZATION OF PRACTICAL ENGINEERS (HANDESSAIM)

David Avi

#### M4 ORGANIZATION: THE ACADEMIC EMPLOYEES UNION AT THE TECHNION

Zvi Bar-Deroma

#### UNION OF THE ADMINISTRATIVE WORKERS AT TECHNION

Aliza Blasberg

#### ORGANIZATION OF TECHNION PENSIONERS

Moshe Barak

#### STUDENTS ASSOCIATION

##### Undergraduate Students

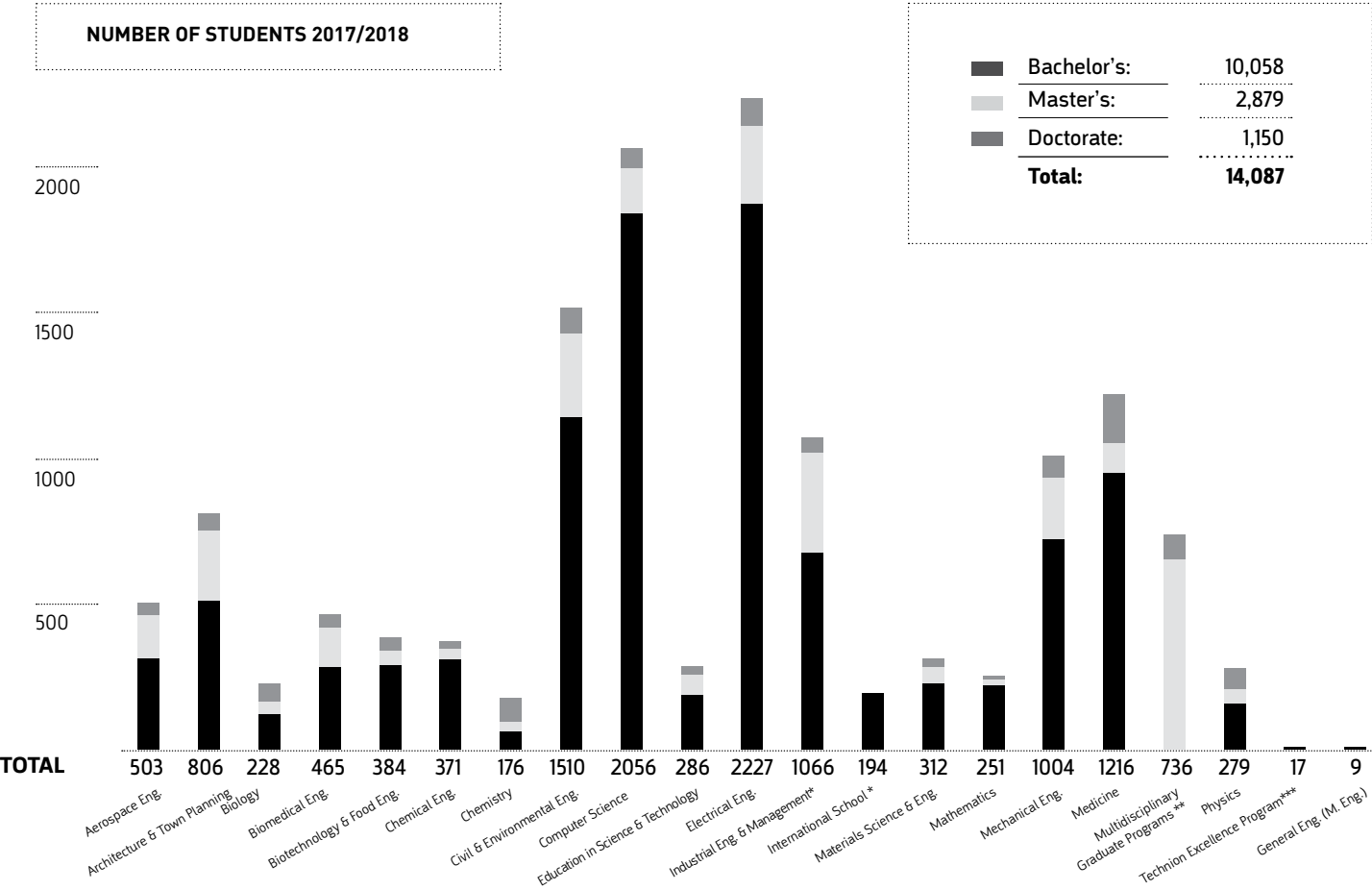
Amir Gerti  
 Ido Weiser-Bitoun

##### Graduate Students

Amir David Nissan Cohen  
 Asaf Hershkovitz



FACTS & FIGURES



\* Including 217 MBA students, 53 of whom are externally funded

\*\* Applied Mathematics; Autonomous Systems & Robotics; Biotechnology; Design & Manufacturing Engineering; Energy; Polymer Engineering; Nanoscience & Nanotechnology; Real Estate Studies; Systems Engineering; Urban Engineering; and Vehicle Systems Engineering

\*\*\* First year intake and not including medical students

FAST FACTS 2018

FOUNDED: 1912

STUDENT POPULATION: 14,087

ACADEMIC DEPARTMENTS: 18

UNDERGRADUATE PROGRAMS: 50

GRADUATE PROGRAMS: 83

DEGREES AWARDED: 113,873

FACULTY: 565

TECHNICAL AND ADMINISTRATIVE STAFF: 1,083

RESEARCH CENTERS: 60

BUILDINGS ON CAMPUS: 106

BUILT-UP AREA: 467,537 m²

DORMITORY BEDS: 4,977

DEGREES AWARDED (GRADUATES)		
	2017	2018
Bachelor's	1,951	1,967
MD	146	148*
Master's	894	908
PhD	243	216
TOTAL	3,234	3,239

\* Including 36 on the Technion American Medical School Program

TOTAL DEGREES AWARDED (1924-2018)	
Bachelor's	82,728
MD	2,861
Master's	22,693
PhD	5,591
TOTAL	113,873

TOTAL STUDENT POPULATION				
	2015	2016	2017	2018
BSc	9,503	9,536	9,819	9,622
MD	459	476	501	436
MSc	2,886	3,127	3,105	2,879
PhD	1,078	1,147	1,113	1,150
TOTAL	13,926	14,286	14,538	14,087

## FISCAL OVERVIEW

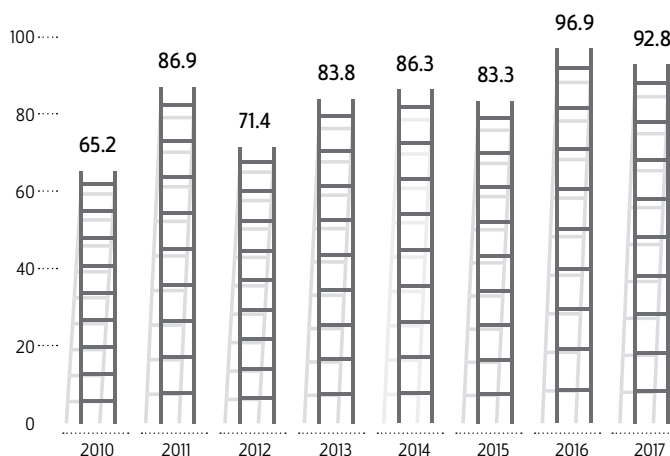
### OPERATING BUDGET 2017/2018

October 1, 2017 - September 30, 2018

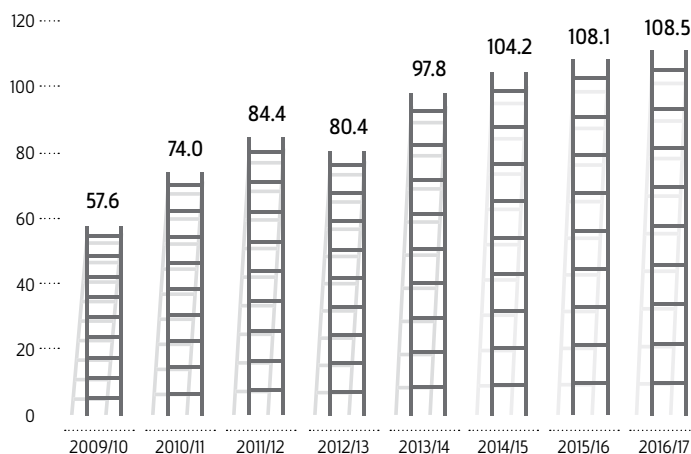
INCOME	Thousands of NIS	%
Government Allocation	1,067,123	70.7
Self Income	222,000	14.7
Tuition Fees	126,000	8.3
Technion Societies	68,800	4.6
Deficit	25,598	1.7
<b>Total Income</b>	<b>1,509,521</b>	<b>100%</b>
<b>EXPENDITURE</b>		
Staff Emoluments	760,914	50.4
Pension Payments	287,652	19.1
Operating Expenses	225,471	14.9
Maintenance	121,340	8.0
Student Aid	114,144	7.6
<b>Total Expenditures</b>	<b>1,509,521</b>	<b>100%</b>

(\*) The actuarial liability of the Technion as of September 30, 2017 was NIS 6.0 billion.  
The consolidated liability (Technion and TRDF) is NIS 6.5 billion.

### SPONSORED RESEARCH FROM EXTERNAL SOURCES (\$US M)



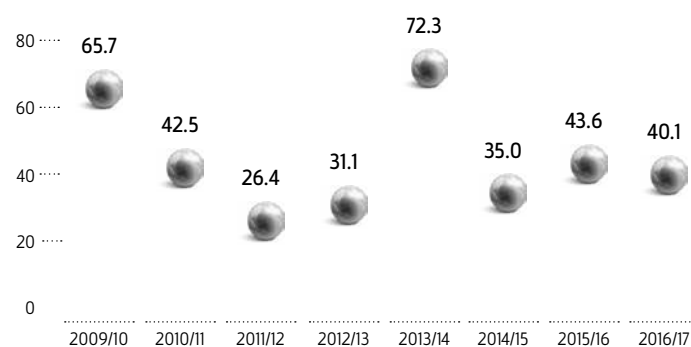
### TOTAL INCOME FROM TECHNION SOCIETIES (\$US M)



### TECHNION INVESTMENT

	Millions of NIS	%
CPI Linked Investments	3,068	47
Stocks	1,850	29
Shekel Unlinked Investments	1,027	16
Foreign Currency Investments	503	8
<b>Total</b>	<b>6,448</b>	<b>100%</b>

### DEVELOPMENT EXPENDITURE (\$US M)



### DEVELOPMENT EXPENDITURE 2016/2017

October 1, 2016 - September 30, 2017

	Thousands of \$US	%	Thousands of NIS*
Buildings, Renovations & Infrastructure	25,433	63.4	93,481
Multidisciplinary Research Centers	5,731	14.3	21,903
Laboratories & Equipment	8,926	22.3	32,392
<b>Total</b>	<b>40,090</b>	<b>100%</b>	<b>147,776</b>

\* \$US 1 = 3,529 NIS

LEADERSHIP



**Lawrence Jackier**  
Chairman of the Board  
of Governors



**Gideon Frank**  
Chairman of the Council



**Prof. Peretz Lavie**  
President



**Prof. Adam Schwartz**  
Senior Executive  
Vice President



**Prof. Hagit Attiya**  
Executive Vice President  
for Academic Affairs



**Prof. Wayne Kaplan**  
Executive Vice President  
for Research



**Matanyahu Englman**  
Executive Vice President  
and Director General



**Prof. Zalman Palmor**  
Executive Vice President  
and Director General Elect



**Prof. Boaz Golany**  
Vice President for External  
Relations and Resource  
Development

DEANS

Dean of Undergraduate Studies  
**Prof. Orit Hazzan**

Dean of the Jacobs Graduate School  
**Prof. Dan Givoli**

Dean of the Azrieli Division of  
Continuing Education and  
External Studies  
**Prof. Zeev Gross**

Dean of Students  
**Prof. Benveniste Natan**

ACADEMIC HEADS

Faculty of Aerospace Engineering  
**Prof. Itzhak Frankel**

Faculty of Architecture  
and Town Planning  
**Prof. Iris Aravot**

Faculty of Biology  
**Prof. Yehuda Assaraf**

Faculty of Biomedical Engineering  
**Prof. Shulamit Levenberg**

Faculty of Biotechnology  
and Food Engineering  
**Prof. Marcelle Machluf**

Wolfson Faculty of  
Chemical Engineering  
**Prof. Gideon Grader**

Schulich Faculty of Chemistry  
**Prof. Noam Adir**

Faculty of Civil and  
Environmental Engineering  
**Prof. Oded Rabinovitch**

Faculty of Computer Science  
**Prof. Dan Geiger**

Faculty of Education  
in Science and Technology  
**Prof. Yehudit Judy Dori**

Viterbi Faculty of Electrical Engineering  
**Prof. Nahum Shimkin**

Department of  
Humanities and Arts  
**Prof. Efraim Lev**

Davidson Faculty of Industrial  
Engineering and Management  
**Prof. Carmel Domshlak**

Faculty of Materials Science  
and Engineering  
**Prof. Yair Ein-Eli**

Faculty of Mathematics  
**Prof. Michah Sageev**

Faculty of Mechanical Engineering  
**Prof. Yoram Halevi**

Rappaport Faculty of Medicine  
**Prof. Shimon Marom**

Faculty of Physics  
**Prof. Ehud Behar**

Guangdong Technion-Israel  
Institute of Technology  
**Vice Chancellor, Distinguished  
Prof. Aaron Ciechanover**

Joan and Irwin Jacobs  
Technion-Cornell Institute  
**Prof. Ron Brachman**

Assistant to the President for Strategic  
Projects and Technion International  
**Prof. Paul Feigin**

Technion Program for Excellence  
**Prof. Michael Elad**

Center for Pre-university Education  
**Prof. Noam Soker**

ADDITIONAL OFFICERS

Deputy Senior Vice President  
**Prof. Alon Hoffman**

Deputy Vice President  
for Research  
**Prof. Anath Fischer**

Deputy Vice President for Research  
for the Pre-Clinical Research Authority  
**Prof. Jackie Schiller**

Deputy Vice President  
for Academic Affairs  
**Prof. Avi Ostfeld**

Deputy Vice President for  
Computing and Information Systems  
**Prof. Reuven Cohen**

Deputy Vice President for Safety Matters  
**Prof. Yaacov Mamane**

Deputy Director General for Finance  
**Dganit Shindelman**

Deputy Director General  
for Human Resources  
**Ariel Hazan**

Deputy Director General of Operations  
**Zehava Laniado**



## FACULTY

### ACADEMIC FACULTY 2018

Faculty	Individuals	Full Time Equivalents (FTEs)
Full Professor	225	224
Associate Professor	155	154
Assistant Professor	166	163
Lecturer	5	5
Others	14	13.5
<b>Total</b>	<b>565</b>	<b>559.5</b>
Clinical Track Appointments	306	114
External Adjuncts	831	283

### NEW FACULTY APPOINTMENTS

#### AEROSPACE ENGINEERING

Joseph Lefkowitz  
*Assistant Professor*

Oksana Stalnov  
*Assistant Professor*

#### BIOTECHNOLOGY AND FOOD ENGINEERING

Omer Yehezkeili  
*Assistant Professor*

#### CHEMISTRY

David Eisenberg  
*Assistant Professor*

Graham de Ruiter  
*Assistant Professor*

#### EDUCATION IN SCIENCE AND TECHNOLOGY

Dr. Zehavit Kohen  
*Lecturer*

#### COMPUTER SCIENCE

Shachar Itzhaky  
*Assistant Professor*

#### ELECTRICAL ENGINEERING

Ittay Eyal  
*Assistant Professor*

Ilya Goykhman  
*Assistant Professor*

Daniel Soudry  
*Assistant Professor*

#### INDUSTRIAL ENGINEERING AND MANAGEMENT

Izack Cohen  
*Assistant Professor*

Ofra Amir  
*Lecturer*

Uri Shalit  
*Assistant Professor*

#### MATERIALS SCIENCE AND ENGINEERING

Elad Koren  
*Assistant Professor*

#### MATHEMATICS

Tali Pinsky  
*Lecturer*

#### MEDICINE

Yonatan Butbul  
*Clinical Lecturer*

Etty Daniel-Spiegel  
*Clinical Lecturer*

Roni Dodiuk-Gad  
*Clinical Assistant Professor*

Naama Geva-Zatorsky  
*Assistant Professor*

Nitza Goldenberg-Cohen  
*Clinical Associate Professor*

Dr. Rinat Gabbay-Benziv  
*Clinical Assistant Professor*

Zvi Gutmacher  
*Clinical Lecturer*

Riad Haddad  
*Clinical Assistant Professor*

Iyad Khamaysi  
*Clinical Assistant Professor*

Alona Paz  
*Clinical Lecturer*

Michal Stein  
*Clinical Assistant Professor*

#### PHYSICS

Shay Hacohen-Gourgy  
*Assistant Professor*

Enrique Kajomovitz Must  
*Assistant Professor*

# AWARDS & HONORS 2017/2018\*

## INTERNATIONAL AWARDS AND HONORS

### AMERICAN SOCIETY OF MECHANICAL ENGINEERS

- > **Frank Kreith Energy Award**  
Prof. Emeritus Gershon Grossman  
Faculty of Mechanical Engineering

### EUROPEAN MOLECULAR BIOLOGY ORGANIZATION (EMBO)

- > **Member**  
Prof. Roy Kishony  
Faculty of Biology

### HORIZON 2020: THE EU FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION - EUROPEAN RESEARCH COUNCIL GRANTS (ERC)

- > **ERC Consolidator**  
Assoc. Prof. Yuval Shaked  
Rappaport Faculty of Medicine
- Prof. Lior Gepstein  
Rappaport Faculty of Medicine
- Assoc. Prof. Gil Alexandrowicz  
Schulich Faculty of Chemistry
- > **ERC Starting Grant**  
Assoc. Prof. Keren Censor-Hillel  
Faculty of Computer Science
- Asst. Prof. Shahar Kvatinsky  
Viterbi Faculty of Electrical Engineering
- Asst. Prof. Asya Rolls  
Rappaport Faculty of Medicine
- Assoc. Prof. Uri Shapira  
Faculty of Mathematics

### HOWARD HUGHES MEDICAL INSTITUTE (HHMI)

- > **International Research Scholar**  
Asst. Prof. Asya Rolls  
Rappaport Faculty of Medicine

### INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

- > **Fellows**  
Assoc. Prof. Alex Bronstein  
Faculty of Computer Science

### Visiting Prof. Avi Mendelson

Faculty of Computer Science

### INSTITUTE OF INDUSTRIAL AND SYSTEMS ENGINEERING (IISE)

- > **Book of the Year Award**  
Prof. Avraham Shtub  
Davidson Faculty of Industrial Engineering and Management

### INTERNATIONAL ACADEMY FOR THE HISTORY OF PHARMACY

- > **Medal**  
Prof. Efraim Lev  
Department of Humanities and Arts

### INTERNATIONAL ASSOCIATION OF ADVANCED MATERIALS (IAAM)

- > **Medal**  
Prof. Emeritus Avraham Marmur  
Wolfson Faculty of Chemical Engineering

### INTERNATIONAL ASSOCIATION OF SURVEYORS (FIG)

- > **Honorary Fellowship**  
Prof. Emeritus Yerach Doytsher  
Faculty of Civil and Environmental Engineering

### INTERNATIONAL UNIVERSITY OF CATALONIA

- > **Honorary Doctorate**  
Assoc. Prof. Rivka Oxman  
Faculty of Architecture and Town Planning

### MINISTRY OF EDUCATION OF THE PEOPLE'S REPUBLIC OF CHINA

- > **Changjiang Distinguished Professorship**  
Prof. Hossam Haick  
Wolfson Faculty of Chemical Engineering

### NATIONAL ACADEMY OF CONSTRUCTION

- > **First Honorary Member outside North America**  
Prof. Aviad Shapira  
Faculty of Civil and Environmental Engineering

### SOCIETY FOR EXPERIMENTAL MECHANICS (SEM)

- > **Lazan Award**  
Prof. Daniel Rittel  
Faculty of Mechanical Engineering

### TECHNICAL UNIVERSITY OF MUNICH

- > **Honorary Doctorate**  
Prof. Orna Grumberg  
Faculty of Computer Science

### UNIVERSITY OF FLORIDA

- > **Distinguished Alumnus Award**  
Technion President  
Prof. Peretz Lavie

### WEB OF SCIENCE

- > **Highly Cited Researchers**  
Prof. Michael Elad  
Faculty of Computer Science
- Prof. Basil Lewis  
Rappaport Faculty of Medicine
- Prof. Shlomo Shamai (Shitz)  
Viterbi Faculty of Electrical Engineering

## ISRAELI AWARDS AND HONORS

### AIR FORCE MUSEUM IN HATZERIM

- > **Competition Winner**  
**Assoc. Prof. Gaby Schwartz**  
Faculty of Architecture  
and Town Planning

### BLAVATNIK AWARD FOR YOUNG SCIENTISTS IN ISRAEL

**Asst. Prof. Charles E. Diesendruck**  
Schulich Faculty of Chemistry

**Assoc. Prof. Anat Levin**  
Viterbi Faculty of Electrical  
Engineering

### COUNCIL FOR HIGHER EDUCATION

- > **Allon Fellows**  
**Asst. Prof. Nadav Amdursky**  
Schulich Faculty of Chemistry

**Asst. Prof. Naama Geva-Zatorsky**  
Rappaport Faculty of Medicine

**Asst. Prof. Elad Koren**  
Faculty of Materials Science  
and Engineering

**Asst. Prof. Kinneret Tedorescu**  
Davidson Faculty of Industrial  
Engineering and Management

### EMET PRIZE FOR 2017

- > **For Computer and  
Electronic Engineering**  
**Dist. Prof. Emeritus Jacob Ziv**  
Viterbi Faculty of Electrical  
Engineering

### ISRAEL CHEMICAL ENGINEERING ASSOCIATION

- > **Honorary Fellow**  
**Prof. Yachin Cohen**  
Wolfson Faculty of Chemical  
Engineering

### ISRAEL CHEMICAL SOCIETY

- > **Gold Medal Award**  
**Dist. Prof. Yitzhak Apeloig**  
Schulich Faculty of Chemistry

### THE ISRAEL ACADEMY OF SCIENCES AND HUMANITIES

- > **Elected Member**  
**Prof. Yonina Eldar**  
Viterbi Faculty of Electrical  
Engineering

### THE ISRAEL YOUNG ACADEMY

- > **Elected Member**  
**Assoc. Prof. Eran Yahav**  
Faculty of Computer Science

### UNIVERSITY OF HAIFA

- > **Honorary Doctorate**  
**Prof. Hossam Haick**  
Wolfson Faculty of Chemical  
Engineering

### THE MARKER

- > **40 Most Promising  
under 40 in Israel**  
**Assoc. Prof. Keren Censor-Hillel**  
Faculty of Computer Science

### MINISTRY OF CULTURE AND SPORT

- > **Arik Einstein Prize for Culture  
and Arts in the Field of  
Artistic Music**  
**Assoc. Prof. Dalia Atlas (ret.)**  
Department of Humanities  
and Arts

- > **Prize in the Field of Plastic Arts**  
**Dr. David Behar-Perahia**  
Faculty of Architecture and  
Town Planning

### NATIONAL ASSOCIATION FOR RESEARCH IN SCIENCE TEACHING

- > **Elected President**  
**Prof. Tali Tal**  
Faculty of Education in Science  
and Technology

### BRUCE AND RUTH RAPPAPORT FOUNDATION

- > **Rappaport Prize for Excellence in  
the field of Biomedical Research**  
**Prof. Shulamit Levenberg**  
Faculty of Biomedical Engineering

### WOLF FOUNDATION

- > **2018 Krill Prize for Excellence  
in Scientific Research**  
**Asst. Prof. Meytal Landau**  
Faculty of Biology

**Asst. Prof. Charles E. Diesendruck**  
Schulich Faculty of Chemistry

**Asst. Prof. Yakov Babichenko**  
Davidson Faculty of Industrial  
Engineering and Management



# AWARDS & HONORS 2017/2018\*

## TECHNION AWARDS AND CHAIRS

### DAVID DUDI BEN-AHARON RESEARCH PRIZE

**Assoc. Prof. Mark Gandelman**  
Schulich Faculty of Chemistry

### COOPER AWARD FOR EXCELLENCE IN RESEARCH

**Assoc. Prof. Anat Levin**  
Viterbi Faculty of Electrical  
Engineering

### ALEXANDER GOLDBERG RESEARCH PRIZE

**Asst. Prof. Barak Fishbain**  
Faculty of Civil and  
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### Asociación Technion Argentina

Bourel & Paris-Laplace  
Suipacha 1380 Piso 2  
C1011ACD  
Buenos Aires  
Tel: +54 (11) 4325 8588  
ms@bplaw.com.ar

## AUSTRALIA

### Technion Australia Inc.

PO Box 1554  
Double Bay NSW 1360  
Tel: +61 (0) 405 328 577  
ori.danieli@austechnion.com  
www.austechnion.com

## AUSTRIA

### Austrian Technion Society / Österreichische Technion Gesellschaft

Seilerstaette 10/21, A-1010 Vienna  
Tel: +43 1 971 7448  
weinberger@technion.at  
www.technion.at

## BRAZIL

### Conselho Técnico Científico do Technion no Brasil

76Farme de Amoedo St.  
Ipanema, Rio de Janiero – 22420-020  
Tel: +55 21 2523 4995  
shaul.shashoua@gmail.com

## CANADA

### National Office & Toronto Chapter

970 Lawrence Ave. West, Suite 206  
Toronto, Ontario M6A 3B6  
Tel: +1 416 789 4545  
Toll Free: +1 800 935 8864  
hershel@technioncanada.org  
www.cdntech.org

### Eastern Region

3435-6900 Decarie Boulevard  
Cote St. Luc QC H3X 2T8  
Tel: +1 514 735 5541  
montreal@technioncanada.org  
www.cdntech.org

## FRANCE/BELGIUM/

### GENEVA/MONACO

### Association Technion France

46, rue de l'Amiral Hamelin 75116 Paris  
Tel: +33 1 40 70 13 28  
muriel.touaty@technionfrance.org  
www.technionfrance.org

## GERMANY

### Deutsche Technion-Gesellschaft e.V.

Knesebeckstr. 71,  
10623 Berlin  
Tel: +49 30 88 554404 /  
+49 30 88 9265529  
Krueger@dtgev.de  
www.deutsche-technion-gesellschaft.de

## GREECE

### Hellenic Technion Society

Tel: +30 21 0349 8211  
dbenard@sidma.gr

## HONG KONG

### Technion Society of Hong Kong

Room 712 East Ocean Centre  
98 Granville Road, TST East  
Kowloon  
Tel: +852 6075 8738  
sissigalor@hotmail.com  
paul.theil@morganstanley.com

## ISRAEL

### Israel Friends of Technion – Head Office

Canada Building  
Technion City, Haifa 32000  
Tel: +972 4 829 2972  
ofersim@technion.ac.il  
its.technion.ac.il

### Tel Aviv

14 Lessin St.  
Tel Aviv 62997  
Tel: +972 3 695 1763

## ITALY

### Associazione Italiana

### Amici del Technion

Via Tito Livio 59  
Rome 00136  
Tel: +39 06 6736254  
italy@dp.technion.ac.il  
www.technionitalia.it

## JAPAN

### Technion Japan K.K.

Tel: +81 (0) 3 3231 8888  
info@technionjapan.com  
www.technionjapan.com

## MEXICO

### Sociedad Mexicana Technion

alerhand@prodigy.net.mx

## NETHERLANDS

### Technion Society of the Netherlands

K.P. van der Mandelelaan 100  
3062MB Rotterdam  
Tel: +31 10 453 1320  
technionfriends@kurtzmarketing.com  
www.technionfriends.nl

## SWEDEN

### Svenska Technionsällskapet

Västerås Science Park/SIR-Gruppen,  
Trefasgatan 4  
S-72130 Västerås  
Tel: +46 21 120440  
Cel: +46 734 36 94 50  
stefan@sirgruppen.se  
www.technionsts.se

## SWITZERLAND

### Schweizer Technion Gesellschaft

Grütlistrasse 68  
CH-8002 Zürich  
Tel: +41 44 289 6688  
info@technion.ch  
www.technion.ch

## UNITED KINGDOM

### Technion UK

62 Grosvenor Street  
London W1K 3JF  
Tel: +44 207 495 6824  
info@technionuk.org  
www.technionuk.org

## UNITED STATES

### American Technion Society

National Office  
55 E. 59th St.  
New York, NY 10022  
Tel: +1 212 407 6300  
info@ats.org  
www.ats.org

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**...and the rest is history**

