WEIZMANN INSTITUTE OF SCIENCE

New Scientists

2024-25

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Table of Contents

Dear Friends,

The infusion of bright young minds into the great endeavor that is science is one of the most important goals that we undertake at the Weizmann Institute of Science, on an ongoing basis. Fresh from their postdoctoral fellowships, these new tenure-track recruits are of the highest caliber and filled with novel ideas for advancing research. They enrich the Weizmann scientific community and consistently break new ground in their respective fields.

This mission is more important than ever today, as Israel strengthens and rebuilds following the events of October 7 and the ensuing war. Science has always served as a foundation of this country and will continue to do so into the future.

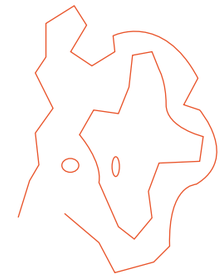
The scientists profiled here are pursuing a range of explorations, from earth sciences and environmental research to mathematics and computer science, and beyond. As with every group of new hires, I look forward with great anticipation to witness their research bear fruit in the years ahead.

The generous philanthropic support of our friends around the globe enables the Weizmann Institute to recruit these individuals and ensure that they have all the tools and resources they need to succeed. Thank you for playing a critical role in this worthy mission.

Sincerely,

Prof. Alon Chen
President, Weizmann Institute of Science

New Scientists 2024-25



Dr. Yinon Bar-On is working to quantify our ecosystems' capacity to absorb carbon

The carbon counter

Our planet's terrestrial ecosystems play a critical role in mitigating climate change by absorbing approximately 30% of the carbon dioxide (CO_2) emitted by human activity. This process, known as "land sink," removes CO_2 from the atmosphere and helps regulate the planet's temperature and overall climate. But just how large is Earth's capacity to absorb CO_2? As we currently lack the means to quantify it, we cannot predict future climate scenarios and develop effective mitigation strategies.

Dr. Yinon Bar-On, who will join Weizmann's Department of Earth and Planetary Sciences in March 2025, is tackling this issue using a combination of remote sensing, field observations, and various computational tools and models.

One of the main challenges in understanding the land sink is quantifying how much carbon is absorbed from the atmosphere into various land-based reservoirs, such as living biomass, detritus, soil, and sediments. As these carbon pools have different turnover rates and are sensitive to both environmental and human-caused changes, understanding the carbon distribution between them will help us constrain—and perhaps even predict—the future dynamics of the land sink.

> "Most places have either a strong plant science department or a strong Earth science department, but not both. To find strength in both fields at once—that's rare. That is what you find at Weizmann."

During his postdoctoral fellowship at the California Institute of Technology, where he worked with Profs. Woody Fischer and Christian Frankenberg in the Division of Geological and Planetary Sciences, Dr. Bar-On developed computational models to track how different land pools absorb CO_2. Using a combination of field measurements and remote sensing techniques (optical, microwave, radar, etc.), he found that the majority of the carbon captured by the land sink in recent decades is stored in non-living reservoirs—e.g., soil, landfill, harvested wood products (such as furniture), and inland waters/dams. Yet, many of these pools are often undervalued in current land sink models.

Tracking soil with AI

At the Weizmann Institute, Dr. Bar-On plans to study the interface between biological and Earth sciences to better constrain the different components involved in the land sink. For example, he plans to develop methods to quantify the supply and removal of carbon from a key non-living carbon pool: soil. He aims to use novel data-theory combinations to predict global dynamics in soil organic carbon (SOC), which is a key element that determines soil quality, fertility, agricultural utility and more. By employing streamlined yet robust SOC models and AI machine learning methods, Dr. Bar-On seeks to more accurately track the dynamics and distribution of SOC across time and space, providing a clearer picture of its global impact.

He also aims to quantify the spatiotemporal dynamics of non-living carbon pools, such as harvested wood products, peatlands, river dams, and floodplains, to align existing models with real-world data.

Land sink resilience

Finally, Dr. Bar-On is exploring the impact of vegetation and photosynthesis on land sink dynamics. He plans to use solar-induced fluorescence (SIF)—a novel and promising remote-sensing approach that allows scientists to observe photosynthesis from space directly. By repurposing existing satellites, Dr. Bar-On intends to construct a unified, long-term record of changes in plant productivity and SIF. This effort will unlock the opportunity to quantify the effects of the environment (e.g., temperature or droughts) and human activities (e.g., deforestation) on plant mortality and the resilience of the land sink.

Dr. Bar-On is fascinated by complex systems, such as our planet's ecosystems, and figuring out how they work. Having earned his PhD studying quantitative biology in Prof. Ron Milo's lab in the Institute's Department of Plant and Environmental Sciences, Dr. Bar-On feels like he's coming home, having gained a broader perspective, expanded to include Earth science and chemistry.

"Most places have either a strong plant science department or a strong Earth science department, but not both. To find strength in both fields at once—that's rare," he says, "That is what you find at Weizmann."

Dr. Bar-On is married with two children.

> Dr. Yinon Bar-On seeks to more accurately track the dynamics and distribution of soil organic carbon across time and space, providing a clearer picture of its global impact.

Education and select awards

- BSc, *summa cum laude*, Tel Aviv University (2014)
- MSc (2016) and PhD (2022), Weizmann Institute of Science
- Postdoctoral Fellow (2023-2024), California Institute of Technology
- Azrieli Foundation PhD Fellowship (2018-2022); Daniel Brenner Memorial Prize from the Weizmann Institute (2022); Rothschild Fellowship for Postdoctoral Studies (2023); Schmidt Science Fellow (2023), awarded by Schmidt Futures.

Attracted to **magnetism**

Prof. Ilya Kuprov explores how magnetic resonance unlocks key insights across science and technology

Prof. Ilya Kuprov, who joined the Department of Chemical and Biological Physics at the start of 2025, is on the cutting edge of exploring the fundamental physics of magnetism.

"We look at how magnetism comes to exist, why things become magnetic, and what to do with those properties," he says. "Some elementary particles are tiny magnetic dipoles. When you put somebody into a magnet, those dipoles align, and it becomes possible to look inside the body, safely and conveniently, using magnetic resonance imaging."

Beyond imaging, Prof Kuprov's work on modelling and interpretation of magnetic phenomena has multiple applications in basic science. Some years ago, he was part of a team exploring the quantum mechanics of how a magnetosensitive chemical reaction in birds' retinas helps them navigate, essentially serving as a biological compass. Early in his career, he also studied the quantum dynamics of magnetic states in photosynthetic reaction centers.

These days, however, he is fully dedicated to computational modeling. Magnetic resonance techniques are indispensable across disciplines, and as he explains, "Chemists use magnetic resonance spectroscopies to determine molecular structure; biologists use them for structural and kinetic studies—things like protein folds, DNA binding, pharmacology, toxicology. Even geologists analyze their rocks using magnetic resonance."

Hit the ground running

Still, what would prompt a tenured professor of physics in the UK to move to Israel—in the middle of yet another war?

Prof. Kuprov points to what he sees as a "serious impending crisis" in British academia. After 22 years in Britain, first as a PhD student and postdoc at Oxford University and then as the Head of the Spin Dynamics Group at the University of Southampton, he grew increasingly frustrated with an academic environment burdened by overwhelming administration and teaching demands, bloated bureaucracy, and a corrosive focus on identity politics that undermine scientific investigation.

"Academic research at Weizmann Institute is in a much healthier state," he says.

Over the years, he had spent around six months in Israel, including as a visiting professor at Weizmann. He was at the Institute in November 2023, a mere month after the October 7 attacks. "My friends at Weizmann asked me if I would like to postpone [the move], and I said, 'I am applying for a professorship here. What would you think of me if I chickened out?'"

Prof. Kuprov's ties with Weizmann Institute scientists go back a decade: he briefly worked with the late Prof. Shimon Vega, whom he calls "a pioneer and a leading light" in the field of magnetic resonance and has shared several research grants with his now-colleagues Profs. Lucio Frydman, Daniella Goldfarb, and David Tannor.

"Chemists use magnetic resonance spectroscopies to determine molecular structure; biologists use them for structural and kinetic studies—things like protein folds, DNA binding, pharmacology, toxicology. Even geologists analyze their rocks using magnetic resonance."

"I think the Weizmann Institute looks for people who fit in well before inviting them to apply. I already have some ideas for what to start working on with Lucio, David, and Daniella once I arrive, and some of that research is already underway. We'll hit the ground running."

A personal journey

Prof. Kuprov's decision to move to Israel is also deeply personal. Raised in Siberia, Russia, when he told his parents he would be moving to Israel to start a new chapter of his career, his father, a geologist who worked in the fossil fuel exploration industry, and his mother, a mountaineering instructor, revealed a surprising family connection: his Ukrainian-born grandfather's birth certificate listed him as Jewish. With that discovery, he was able to apply for repatriation on the grounds of Jewish ancestry, simplifying the move, which he describes as "easy and awesome."

He is also enthusiastic about the "fantastic" resources at the Institute, lauding the excellent administrative support and reasonable teaching loads. Relocating to "the best place in a country is a lovely opportunity," he says. "My experience at the Weizmann Institute has been delightful."

Relocating to "the best place in a country is a lovely opportunity," Prof. Ilya Kuprov says. "My experience at the Weizmann Institute has been delightful."

Education and select awards

- BSc and MSc, Novosibirsk State University, Russia (2002)
- PhD, Corpus Christi College, University of Oxford (2005)
- Junior Research Fellow, Magdalen College, University of Oxford (2005-2009)
- Engineering and Physical Sciences Research Council Early Career Fellowship (2009); Research Fellowship at Wolfson College, University of Oxford (2010); Fellowship of the Royal Society of Chemistry (2015); Fellowship of the International Society of Magnetic Resonance (2021); Atreya Award from the National Magnetic Resonance Society of India (2022).

Appointments

- Assistant Professor, Oxford/University of Southampton (2009-2014)
- Associate Professor, then Full Professor, University of Southampton (2014-2024)

Dr. Shifra Lansky is harnessing atomic force microscopy to investigate membrane protein dynamics

Decoding molecular mysteries

Dr. Shifra Lansky's journey into the world of structural biology began with a fascination for biology that initially drew her toward a medical career. As she delved deeper into the complexities of living organisms, she found herself captivated by the intricate mechanisms at work within them. This shift in focus led her to embrace research, where she could explore these dynamics more profoundly, eventually leading her to the Weizmann Institute of Science.

As a principal investigator in the Department of Chemical and Structural Biology, Dr. Lansky employs cutting-edge techniques like cryogenic electron microscopy (cryo-EM) and high-speed atomic force microscopy (AFM) to study membrane protein dynamics. Emerging as a leader in her field, Dr. Lansky's work advances our understanding of biological systems, highlighting the transformative power of curiosity and technology in pursuing exceptional science.

The basics of life

Her passion as a student led her to pursue a PhD in protein X-ray crystallography at The Hebrew University of Jerusalem, where she was mentored by Prof. Gil Shoham.

"The research I conducted with Prof. Shoham and the many exciting scientific discussions I had with him first inspired me to continue in the scientific research path, and first shaped my interest in the mechanistic study of proteins," she reflects. During her PhD studies, she made significant strides in protein X-ray crystallography, eventually deciphering the static structures of many different proteins and providing critical insights into their basic mechanisms.

She then began a postdoctoral fellowship at Weill Cornell Medicine in New York, where, under the guidance of Prof. Simon Scheuring, she expanded her research to include ion channel proteins, leveraging the cutting-edge high-speed AFM technique to explore further their dynamic activity. "Prof. Scheuring is responsible for the scientific trajectory my career is currently taking, and was and still is incredibly supportive of me," Dr. Lansky says.

> "My advice to others interested in science is to follow your heart and find research that excites and motivates you."

From images to action

High-speed AFM allows researchers to capture proteins' movements and interactions with their environment.

"Imagine observing proteins in action; it's like watching a video rather than being limited to a snapshot!" she explains. "Let's say you want to learn to walk; you can only gain so much information by looking at an image. A video, on the other hand, gives you much more insight into complex movements."

Using high-speed AFM, she uncovered a rare and transient state of the membrane protein responsible for our sensation of temperature, providing unprecedented insights into its functional mechanisms at the single-molecule level. These findings, complemented by cryo-EM experiments that provide high resolution structural information of membrane proteins, revealed unexpected structural rearrangements of the protein's subunit configuration that may be critical for our regulation of temperature sensation.

"X-ray crystallography paved the way for cryo-EM. Cryo-EM allows us now to see membrane protein structure in their natural environments with unprecedented clarity," she explains. Recently published in *Nature*, her findings challenge conventional understanding and offer new avenues for exploring the role of ion channels in cellular physiology and disease.

Keeping proteins functioning

Dr. Lansky is optimistic about the impact her research could have on medicine. By elucidating the structural dynamics of membrane proteins, her work offers key insights for developing targeted therapies that modulate protein function. Understanding these mechanisms is vital for addressing diseases linked to protein dysfunction, providing hope for innovative treatments and personalized medicine.

"Proteins function as intricate molecular machines, governing essential bodily functions. Many diseases stem from protein malfunctions. To effectively address these issues, we must first understand their operations in optimal, healthy states. There is much to be gained here—for science and medicine," she emphasizes.

Outside the lab, Dr. Lansky, an accomplished violin player, finds harmony in a life blending science and music, and she and her husband are the devoted parents of two young children. "There's much to appreciate about the Weizmann campus—dedication to cutting-edge scientific research is strongly promoted here. I also value the highly collaborative environment, the impressive array of scientific facilities and equipment, and the international community," she says.

"My advice to others interested in science is to follow your heart and find research that excites and motivates you. Passion will help you navigate the challenges of a scientific career."

> Dr. Shifra Lansky's work offers key insights for developing targeted therapies that modulate protein function.

Education and select awards

- BSc, *summa cum laude*, The Hebrew University of Jerusalem (2013)
- PhD, Hebrew University (2019)
- Postdoctoral Fellow, Weill Cornell Medicine (2020-2024)
- Azrieli Graduate Studies Fellowship (2015-2018), The Hebrew University Post-Doctoral Scholarship for Excellent Female Students (2019-2020), Rothschild Fellowship for Postdoctoral Studies (2019-2020), Zuckerman STEM Leadership Program (2019-2020), Women's Postdoctoral Career Development Award in Science (2022-2023), Alon Scholarship for Outstanding Young Faculty Members (2024-2026).

At the core of **machine learning**

Dr. Gal Vardi is on a quest to understand neural networks and how to train them

Deep learning theory, a sub-field of machine learning, holds the promise of transforming artificial intelligence. This area of research focuses on fundamental mathematical questions about neural networks—a method in AI that uses layered structures of interconnected nodes or neurons to teach computers to process data in a way inspired by the human brain.

Dr. Gal Vardi, a new member of the Department of Computer Science and Applied Mathematics, is working to understand the underlying mathematical principles that determine when deep learning works—and when it doesn't, and what factors control the success or failure of training neural networks.

At the core of machine learning is the concept of generalization—using real-world examples to "train" artificial neural networks. For example, a network can be trained to recognize whether an image shows a cat or a dog after it has been shown many images of the same animals. The challenge is that while the human brain excels at generalization from just a few examples, artificial neural networks need vast data to perform similarly.

"The objective is to use existing examples to find an algorithm that performs well on new examples," he says.

Dr. Vardi explains that while generalization is fundamental to machine learning and has been studied for decades, we still don't fully understand generalization in the context of deep learning.

"We don't understand what controls whether a neural network generalizes well or not," he says.

> Dr. Gal Vardi enjoys "the spirit of Weizmann," as well as the people. "I was really happy to come back to the Institute," he says.

Theory vs. real-world

One of Dr. Vardi's main research areas is probing the factors behind a neural network's ability to generalize from a theoretical, mathematical perspective.

"If we can gain good insights into what helps generalization, we might also be able to improve practical applications," he says. "I like the whole field of deep learning theory because it's intriguing and challenging from the mathematics perspective, but also connected to real-world applications."

Born in Rehovot, Dr. Vardi was drawn to math and computer science from a young age and completed his BSc at The Hebrew University of Jerusalem as a cadet in the IDF's prestigious Talpiot Program, designed to nurture the country's most talented young scientists.

"I didn't know that this was what I was going to do until a much later stage," he says.

A new algorithm

After earning his MSc and PhD in computer science under Prof. Orna Kupferman at Hebrew University, he came to the Weizmann Institute as a postdoctoral fellow in the group of Prof. Ohad Shamir in the Department of Computer Science and Applied Mathematics, with whom he published numerous studies in the field of deep learning.

From 2022-2024, he was a joint postdoctoral fellow at the Toyota Technological Institute-Chicago and Hebrew University, where he was also supported by the National Science Foundation/Simons Collaboration on the Theoretical Foundations of Deep Learning.

In June 2024, Dr. Vardi returned to the Weizmann Institute as a principal investigator. He is now collaborating with his department dean and colleague, Prof. Michal Irani, a leader in the study of computer vision. One of their joint studies has already yielded exciting insights: using theoretical results from deep learning, they developed an algorithm that identifies the examples a given network was trained on.

While many young scientists at Weizmann live on campus, Dr. Vardi and his wife, Liron, a gynecology resident at Hillel Yaffe Medical Center in Hadera, and their two young children have made Kfar Saba their home.

While the decision to come to Weizmann, rather than his alma mater of Hebrew University, might not be an obvious choice, Dr. Vardi enjoys "the spirit of Weizmann," as well as the people. "I was really happy to come back to the Institute," he says.

> "I like the whole field of deep learning theory because it's intriguing and challenging from the mathematics perspective, but also connected to real-world applications."

Education and select awards

- BSc, The Hebrew University of Jerusalem, Talpiot Program (2007)
- MBA, Tel Aviv University (2011)
- MSc (2015) and PhD (2019), Hebrew University
- Postdoctoral Fellow, Weizmann Institute of Science (2020-2022)
- Postdoctoral Fellow, Toyota Technological Institute-Chicago/Hebrew University (2022-2024)
- Koshland Prize from the Weizmann Institute (2020); Feinberg Graduate School Prize for Outstanding Achievements in Postdoctoral Research (2022); Postdoctoral Fellow, National Science Foundation/Simons Collaboration on the Theoretical Foundations of Deep Learning (2022-2024); Zuckerman Faculty Scholar (2024).

Dr. Yoav Voichek
is uncovering the untapped potential in the genetic code of plants

Breaking new ground in **plant genomics**

For Dr. Yoav Voichek, science has always been about solving riddles. As a high school student in Tel Aviv, he was so fascinated by mathematical puzzles that he completed most of his bachelor's degree in mathematics before graduating. Now, after exploring multiple scientific disciplines, he is returning to the Weizmann Institute to establish his own lab in the Department of Plant and Environmental Sciences. Here he will focus on solving a major biological mystery: what are the strategies that plants use to regulate their genes, and how do they differ from other organisms. His research could provide key insights into how plants adapt to changing environments and how we might engineer more resilient crops.

> "The strong intellectual atmosphere and interactions between different fields [at the Weizmann Institute] allowed me to bridge mathematics and biology in ways I hadn't considered before."

After receiving his BSc at The Open University of Israel, Dr. Voichek continued his journey in academia as a research assistant in Prof. Amos Tanay's group in the Department of Computer Science and Applied Mathematics at the Weizmann Institute. There, he applied analytical and mathematical tools to decode the complexities of genome regulation. It was the richness of the genomic landscape that sparked his enduring passion for biology.

"The Weizmann Institute provided exactly the right environment for this transformation. The strong intellectual atmosphere and interactions between different fields allowed me to bridge mathematics and biology in ways I hadn't considered before," he says.

Following his work with Prof. Tanay, Dr. Voichek embarked on his PhD studies in Prof. Naama Barkai's lab in Weizmann's Department of Molecular Genetics, where he and his colleagues made a groundbreaking discovery in cell division, namely how cells prevent the overproduction of proteins during DNA replication.

"We weren't even looking for this initially," he recalls. "We discovered that cells have a sophisticated system for marking newly replicated genes to prevent them from transcribing proteins twice and thus maintain proper protein production levels during cell division. It was completely unexpected and changed our understanding of how this fundamental process works."

The next frontier

Since gene regulation has been extensively studied in yeast and animals, plants—with their complex and mysterious gene regulation—emerged as the next exciting frontier. Curious about possible genetic differences between animals and plants, Dr. Voichek moved to a plant genetics lab at the Max Planck Institute in Germany for his postdoctoral fellowship, where he developed an innovative "shortcut" method for systematically identifying genetic variants that control traits, even in unsequenced genomes. This approach accelerates research and has been applied in diverse fields—from understanding seahorse sex determination to improving wheat resistance to pathogens.

> "Science should be fun and driven by curiosity—that's when the most exciting discoveries happen."

Dr. Voichek's work challenges the idea that gene transcription functions the same across all organisms, and by studying plants in diverse environments, he is uncovering unique genetic "rules" that set them apart. During his second postdoctoral fellowship, at the Gregor Mendel Institute in Austria, he found that, unlike in animals—whose genetic regulatory sequences function the same no matter where they are found—the location of some sequences in the plant genome dramatically affects their function. He also identified a novel regulatory sequence that simultaneously controls thousands of genes—insight that could transform how we modify plants for various purposes.

His research could help address global agriculture and food security challenges, with potential applications like creating more efficient "protein factories" in plants or developing crops better suited to changing environments.

Pushing boundaries

In his lab at the Weizmann Institute, set to open in the summer of 2025, Dr. Voichek plans to combine diverse experimental plant models with his computational expertise to gain systems biology-level insights into plant genomes. By comparing flowering plants with moss species, which diverged 500 million years ago when plants first moved from water to land, he aims to understand whether unique genetic regulatory mechanisms are universal or specific to certain plant groups. His research could provide crucial insights into plant adaptation, evolution, and genetic survival across varying environmental conditions—vital information for helping plants endure the extreme ecological changes affecting the planet.

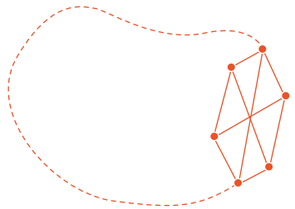
Looking ahead, Dr. Voichek envisions building a lab that reflects the Weizmann spirit of scientific adventure.

"I want to create an environment where we have the freedom to follow unexpected findings and cross traditional disciplinary boundaries," he says. "Science should be fun and driven by curiosity—that's when the most exciting discoveries happen."

Dr. Yoav Voichek is married to Dr. Maya Voichek, a fellow biologist. They have two children.

Education and select awards

- BSc, *magna cum laude*, The Open University of Israel (2008)
- PhD, Weizmann Institute of Science (2016)
- Postdoctoral Fellow, Max Planck Institute for Developmental Biology, Germany (2018-2019)
- Postdoctoral Fellow, Gregor Mendel Institute of Molecular Plant Biology, Austria (2020-2024)
- Marie Skłodowska-Curie Actions Individual Fellowship from the European Commission (2021); VIP2 (Vienna International Postdoctoral Program) from the European Commission (2020).



From wallpaper to the cosmos, **Prof. Daniel Wise** is bridging abstract theory with the fundamental structures that govern our universe

Patterned **symmetry**

When most people glance at wallpaper, complex mathematics is probably not the first thought that springs to their minds. But Prof. Daniel (Dani) Wise, a newly hired scientist in the Department of Mathematics, is far from typical. Using the analogy of wallpaper patterns, Prof. Wise explains the considerably knottier mathematical field of geometric group theory—a fascinating subject that explores repeating patterns in complex spaces.

"Imagine a room decorated with patterned wallpaper," he posits. "The design—whether it's animals, flowers, or abstract shapes—repeats itself in a regular way. And one can work out, mathematically, the rules that govern this pattern."

While wallpaper patterns are relatively simple, confined to the flat, two-dimensional world, Prof. Wise studies far more complex patterns, or groups, which exist in intricately twisted, curved, and higher-dimensional spaces. These patterns stretch beyond the familiar geometry of our everyday world, challenging our understanding of space itself.

Cube collection

Early in his career, Prof. Wise began developing a novel approach to studying geometric group theory, one that would prove to be a breakthrough in the field. He was able to break down the complicated patterns into simpler blocks by taking a section of a group and reimagining it as being composed of "cube complexes"—a collection of high-dimensional cubes.

"It's like solving a difficult puzzle by breaking it into manageable pieces, which then reveals a greater underlying order," he explains. "As I continued working on my idea and building it up, and as it got more and more complicated—for a long time, nobody understood what I was talking about. When they finally did, they said it would never work, that it couldn't be true."

Prof. Wise's perseverance paid off when everything began falling into place, leading to a series of significant papers co-authored with colleagues. His cube complex approach provided a groundbreaking way to simplify and organize these complicated patterns and enabled mathematicians to understand the enigmatic world of 3-manifolds, a key area in modern mathematics.

> "Being at Weizmann is such an amazing opportunity. I feel as though I have all these avenues open to me for exploring deep questions and forging connections with amazing scientists from different disciplines."

A 3-manifold is a space that appears three-dimensional when you zoom in to any point. Imagine the air around a knotted rope or even the universe itself—both are examples of 3-manifolds. From an external perspective, the universe may seem to have a curved and finite shape. However, for anyone inside the universe, it feels like ordinary 3D space—flat and infinite in all directions, regardless of its overall structure.

A new home

Now at the Weizmann Institute, Prof. Wise is eager to continue exploring these mathematical ideas and to seek collaborations that may bridge the gap between abstract theory and practical innovation.

"Being at Weizmann is such an amazing opportunity," he says. "I feel as though I have all these avenues open to me for exploring deep questions and forging connections with amazing scientists from different disciplines."

Moving to Rehovot marks the culmination of years of longing to live and work in Israel, a country that has always felt like a second home. His wife, Yael—an Israeli professor of English and Jewish Studies—shares his strong ties to the region, and their family has often divided their time between North America and Israel. Over the

years, they have spent three sabbaticals in Israel, the last of which was immediately after the beginning of the war in 2023 when Prof. Wise was at the Weizmann Institute as a visiting professor. Now, two of their four children live in Israel as well.

Love for the land

When he came to Rehovot, he recalls thinking, "This is it. The environment at Weizmann is incredible—the students I've worked with are exceptionally talented and eager to learn. It's inspiring to teach young people at the start of their careers, knowing they'll go on to do amazing things. And not to mention, I'll never need to buy citrus ever again!"

Though raised in New York, Prof. Wise's roots in Israel run deep. His mother is Israeli, and his grandfather founded, alongside David Ben-Gurion, the International Bible Contest ("*Chidon HaTanach*")—a worldwide competition on Jewish biblical texts for middle school and high school students. His grandfather was also among the pioneers of Kibbutz Tirat Zvi in the Beit She'an Valley, founded in 1937 in pre-state Israel.

These connections have instilled in him a profound sense of belonging and a love for the land and its people, and he is determined to immerse himself in the language and culture: "Though English is my native tongue," he says, "I insist that my colleagues at Weizmann speak to me only in Hebrew. If they don't, I'll respond in my terrible French!"

Education and select awards

- BA, Yeshiva University (1991)
- PhD, Princeton University (1996)
- Postdoctoral Fellow, University of California, Berkeley (1996-1997)
- The E. H. Moore Research Article Prize (2022), awarded by the American Mathematical Society (AMS); Lobachevsky Medal from Kazan State University, Russia (2019); CRM-Fields-PIMS Prize (2016), the premier Canadian research prize in mathematical sciences; Guggenheim Fellowship (2016); the Canadian Mathematical Society's Jeffery-Williams Prize (2016); the Oswald Veblen Prize in Geometry, awarded by the AMS (2013); Fellow of the Royal Society of Canada (2014) and Fellow of the Royal Society of London (2018).

Appointments

- Assistant Professor, Cornell University (1997-2000)
- Visiting Assistant Professor, Brandeis University (2000-2001)
- Assistant Professor, Associate Professor, and Full Professor, McGill University (2001-2024)
- Visiting Professor, The Hebrew University of Jerusalem (2008-2009), Technion-Israel Institute of Technology (2016), Sorbonne University (2022), Weizmann Institute of Science (2023)

The Weizmann Institute of Science is deeply indebted to the following individuals, families, and philanthropic funds who generously support our new scientists.

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