אוניברסיטת תל אביב
TEL AVIV UNIVERSITY

המכון ללימודים מתקדמים

The Institute of Advanced Studies

Annual Album for the Academic Year 2022-2023

Report of the Director

The Institute of Advanced Studies (IAS) at Tel Aviv University was founded to promote academic excellence by inviting and hosting eminent scholars from around the world. Through these visits, our mission is to elevate international research collaboration, enrich the intellectual fabric of our campus, and inspire faculty and students alike toward further achievement in key areas of study. These encounters not only advance scholarship in the present, but also lay the groundwork for future collaborations, including joint projects, long-term academic partnerships, and potential opportunities for student and postdoctoral exchanges.

In 2022–2023, as global academic life began to regain its rhythm following the disruptions of the COVID-19 pandemic, the IAS was proud to host 22 exceptional visitors across five scholarly frameworks, along with one additional lecture held via Zoom.

The IAS Visiting Scholars program welcomed seven extraordinary scholars, among them two Nobel Prize Laureates, Professor François Englert and Ms. Olga Tokarczuk.

The IAS Distinguished Scholars program brought to campus five leading experts in their fields.

We were pleased to continue our collaboration with the **Fulbright-TAU Senior Scholar** Program, hosting Professor Andrea Berlin.

Our **Distinguished Lectures Series** offered a platform for eight eminent experts to share their work with a wide academic audience.

Through the **Nirit and Michael Shaoul Visiting Fellowship**, we welcomed Lenya Ryzhik, whose visit had been postponed due to the pandemic.

Of course, this year was not without its challenges. While we celebrated the return to vibrant activity, Israel also experienced significant social and political unrest. Despite these circumstances, the Institute has continued to thrive, hosting a wide range of academic events, welcoming distinguished visitors, and deepening its engagement with both local and international scholars. These moments only highlight the value of the Institute, as a stable space for open inquiry and thoughtful discussion, even when the broader environment is unsettled.

I extend my sincere thanks to our visitors, academic collaborators, and the dedicated team that makes the Institute's work possible. In a world where complexity and uncertainty are ever present, the IAS continues to offer space for deep thought, cross-border collaboration, and intellectual exploration.

We look forward to the continued growth of this vital enterprise in the years ahead.

Marek Karliner

Marek Karliner
Director, Institute of Advanced Studies
Tel Aviv University

Contents

Visiting Scholars

IAS Visiting Lecturers are selected for their eminence in their respective fields of research.

The program hosts two categories of academic visitors:

1. IAS Visiting Lecturers, who are invited for a period of one to two weeks and are expected to deliver a few lectures during their visit.

2. IAS Visiting Fellows, who are visitors who stay at the University for a period of one to three months for the primary purpose of interacting with Faculty members and graduate students. IAS Visting Fellows are free of the regular responsibilities of visiting faculty members, including teaching, lecturing, or administrative duties. Although, most of our guests have chosen to give a few lectures in their field of expertise. The lectures are frequently the highlight of the semester and attended by academics from all over Israel.

2022-2023 IAS VISITING FELLOWS AND LECTURERS

Professor François Englert

Sackler Professor by special appointment • Nobel Prize Laureate in Physics • Professor Emeritus Université Libre de Bruxelles, Belgium

Professor Glenn Most

Fellow • Professor Emeritus of Greek Philology Scuola Normale Superiore di Pisa, Italy • The Committee on Social Thought, University of Chicago, USA

Professor Antonio Panaino

Lecturer • Department of Cultural Heritage, University of Bologna, Italy

Professor James Conant

Lecturer • Department of Philosophy, and the College. Director, Chicago Center for German Philosophy, The University of Chicago, USA

Professor David Dean

Lecturer • Laboratoire Ondes et Matière d'Aquitaine (LOMA), University of Bordeaux, France

Professor Howard A. Stone

Lecturer • Donald R. Dixon '69 and Elizabeth W. Dixon Professor, Department of Mechanical and Aerospace Engineering , Princeton University, USA

Ms. Olga Tokarczuk

Fellow • Nobel Prize Laureate in Literature

Professor Ralph Etienne-Cummings, Ph.D.

Lecturer • ***Zoom lecture*** • The Department of Electrical and Computer Engineering, The Johns Hopkins University, USA

Prof. François Englert

Professor Francois Englert and IAS Director Professor Marek Karliner

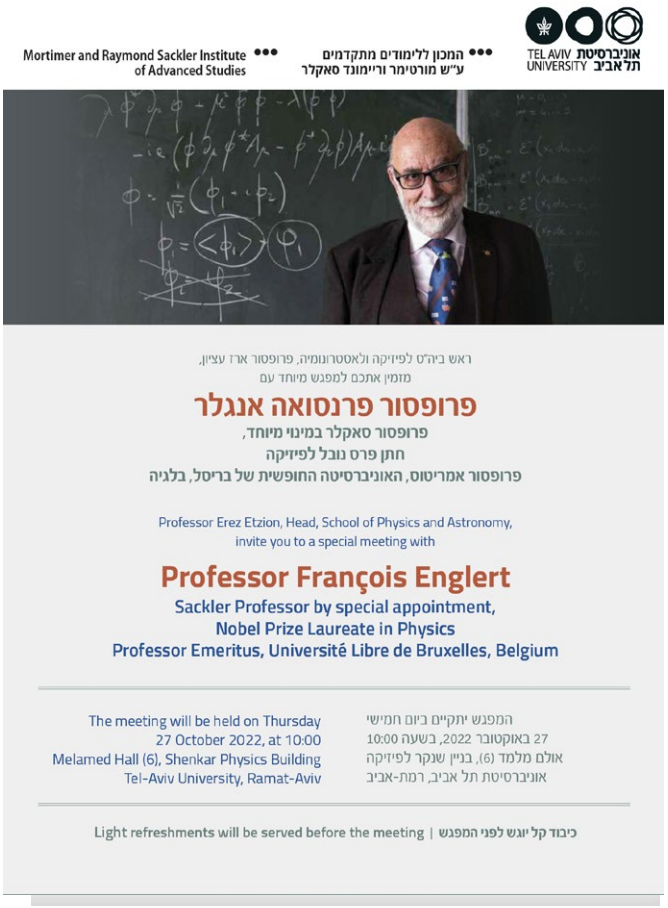
Prof. François Englert, Nobel Prize Laureate in Physics and Professor Emeritus from the Université libre de Bruxelles, visited Tel Aviv University between October 19, 2022 to November 2, 2022 as a Sackler Professor by Special Appointment.

Prof. Englert was awarded the 2013 Nobel Prize in Physics "for the theoretical discovery of a mechanism that contributes to our understanding of the origin of mass of subatomic particles, and which recently was confirmed through the discovery of the predicted fundamental particle, by the ATLAS and CMS experiments at CERN's Large Hadron Collider".

Prof. Englert has made contributions in statistical physics, quantum field theory, cosmology, string theory and supergravity. He is the recipient of the 2013 Prince of Asturias Award. He was also awarded the 1982 Francqui Prize, the 1997 HEPP Prize from the European Physical Society, the 2004 Wolf Prize in physics and the J.J. Sakurai Prize. He is a Professor Emeritus at Service de Physique Théorique at the Université Libre de Bruxelles (ULB) and a Sackler Professor by Special Appointment at Tel Aviv University.

During his visit, Prof. Englert held a special meeting with the Students of the Raymond and Beverly Sackler School of Physics and Astronomy (27 October 2022), hosted by the Head of the School of Physics and Astronomy, Professor Erez Etzion. The meeting was enthusiastically attended by the very best physics students. It was a huge success. It evoked many important questions and left a priceless mark on the students. Prof. Englert also held informal meetings with faculty and research students. Those meetings, with both the young and the more advanced researchers on campus, were highly inspiring and stimulating.

During the visit Prof. Englert told several times that his stay at Tel Aviv University was very successful. He also expressed his gratitude for the hospitality and the hard work of the administrative staff at the Institute for Advanced Studies in preparation for the visit which made his stay so smooth and enjoyable.



Invitation to the special meeting with Prof. François Englert

Engaged minds at work during the lecture

Prof. Glenn Most

Professor Glenn Most, of the Scuala Normale Superior di Pisa, Italy and the University of Chicago, USA, has completed a six-week stay at Tel Aviv University as a Visiting Fellow. It was a successful visit from our and his viewpoint.

Due to the pandemic, Professor Most's activities at Tel Aviv University spanned over two academic years, 2021/22 and 2022/23. On 1 December 2021, he gave a virtual lecture via Zoom, titled "From Athens to China and Back: A Western Student of Ancient Greece Looks at the Chinese Classical Tradition", where he discussed the divergent understandings of the notion of 'classic' in these different traditions from the point of view of his personal encounter with these cultures. This multi-disciplinary lecture attracted a large audience and gave rise to a lively discussion.

Director of the Cohn Institute for the History and Philosophy of Science and Ideas Professor Shaul Katzir, academic host Professor Orna Harari and Professor Glenn Most

Professor Most's exceptional virtues as a scholar and as a colleague found their fullest expression in the present academic year (2022/23) when the conditions allowed him to visit Tel Aviv University in person.

On 14 November 2022, he gave an inspiring lecture, titled "Thales and the Beginning of Greek Philosophy", where he convincingly showed how and why Aristotle regarded Thales rather than Anaximander as the originator of Greek philosophical thought. Its specialized subject notwithstanding, this lecture too attracted a large audience and led to a fascinating discussion in which faculty members from different disciplines (philosophy, history of science, classics, biblical studies, and east-Asian studies), as well as graduate students participated. This scholarly exchange was thought-provoking for both the audience and Professor Most.

Prof. Glenn Most interacting with the audience before his lecture

Prof. Glenn Most delivering his lecture

In addition to this lecture, Professor Most participated in a workshop on skepticism in western and eastern traditions, held on 12 December, where he presented and discussed texts attesting to early-Pyrrhonism and its revival in the Hellenistic period. Further, on his arrival to Tel Aviv, he joined a workshop on Aristotle's chemistry, held on 6–10 November, where he immensely contributed to the understanding of this contentious subject and helped shape the international research project that will evolve from this workshop.

During this visit, Professor Most devoted much of his time to meetings with faculty members, mostly from Tel Aviv University but also from other universities in the country for discussions about their and his own research. He was especially generous towards young faculty members and graduate students, by offering to read and comment on their work and by helping them find suitable venues of publication.

I have no doubt that these meetings will have a long-lasting effect on the scholarly community of the faculty of Humanities at Tel Aviv University. In fact, this visit has already led to two joint on-line regular reading workshops, one on the anonymous ancient Tablet of Cebes and another on Philo of Alexandria's The Eternity of the World. The donors of this fellowship and the IAS have the gratitude of both Professor Glenn Most and the scholarly community of Tel Aviv University for facilitating this visit and for the generous hospitality.

Prof. Orna Harari

Prof. Antonio Panaino

Professor Antonio Panaino is the Chair of Iranian History, Religions, and Philology at the University of Bologna, and one of the world's leading scholars in Ancient and Medieval Iran.

Prof. Panaino is also an external affiliate at the Pourdavoud Center for the Study of the Iranian World, the University of California, Los Angeles, USA. He is a member of the Corpus Inscriptionum Iranicarum and the Advisor Committee at the Encyclopædia Iranica, where he also serves as a Consulting Editor.

Prof. Panaino arrived at Tel Aviv University as an IAS Visting Lecturer on December 6th and he left on December 20th, 2022.

He conducted various activities on our campus among which three lectures.

Academic host Prof. Dominico Agostini, IAS board member Prof. Benjamin Isaac and Prof. Antonio Panaino

In the framework of the MA seminar "Apocalypse of Empires" at the department of General History, Prof. Panaino gave on December 14th the lecture "The Scope of the Divine Creation and its End". This event was open also to all interested students and colleagues.

On December 20th, in the context of the Forum Rubin at the School of History, Prof.

Panaino offered the lecture "Building Diplomatic Rules: Attempts at Dialogue Between Sasanian Persia and Byzantium".

The last lecture "The Double Aspect of Zurwān: The Astonishing Dialectics Between Eternal and Limited Time Within the Millenarian Zoroastrian Cosmological Drama" was held at an event at the department of Classical Studies.

In the framework of the ISF project "Rethinking and Reassessing the Iranian Apocalypse from the Sixth to the Tenth Century CE," Prof. Panaino and Prof. Agostini scheduled regular meetings (at least three per week) to discuss and investigate several important research issues such as the concept of Apokatastasis and Eschatology. We planed to write two joint articles on this subject.

Prof. Antonio Panaino interacting with IAS Administrative Director Ms. Ronit Nevo

Given Prof. Panaino's range of interests and areas of competence, several faculty members and students scheduled a meeting with him. His visit was an asset to the entire Faculty of the Humanities.

Last but not least, in the context of the cooperation between Tel Aviv University and the University of Bologna, Prof. Panaino and Prof. Agostini discussed the application for a ERC Synergy Grant that they plan to present together with outstanding colleagues at the Academy of Sciences of Vienna and at the Ecole des Hautes Etudes of Paris.

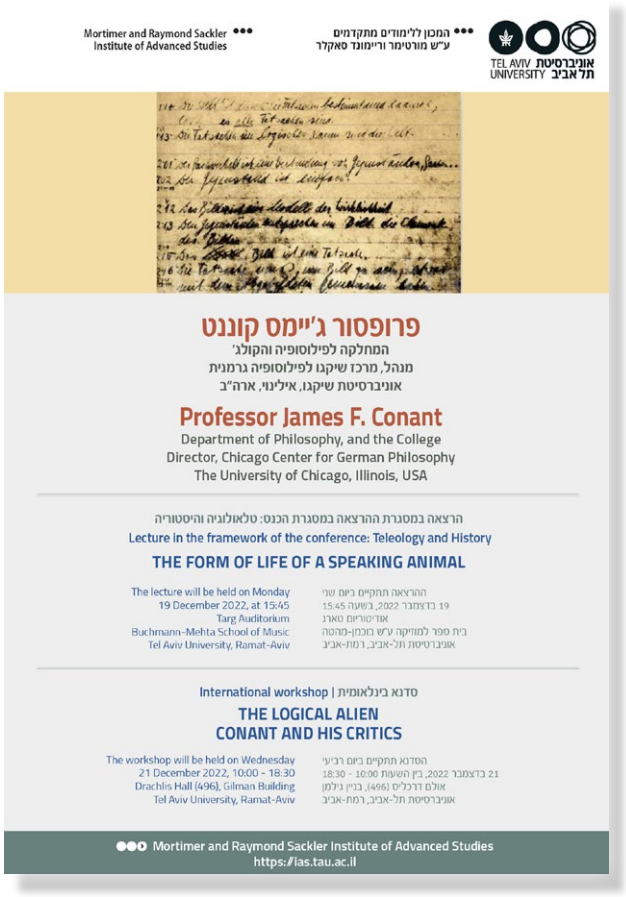
Prof. Panaino's visit greatly enriched the academic life of our community and laid the groundwork for future international collaborations of significant scholarly value.

Prof. James Conant

Prof. James Conant is Chester D. Tripp Professor of Humanities, Professor of Philosophy, Professor in the College and Director of the Center for German Philosophy at the University of Chicago, USA. Prof. Conant is also Humboldt Professor of Philosophy and co-director of the Center for Analytic German Idealism (FAGI) at the University of Leipzig, Germany.

Prof. Conant works broadly in philosophy and has published articles on topics in Philosophical Logic, Epistemology, Philosophy of Language, Philosophy of Mind, Aesthetics, German Idealism, and the History of Analytic Philosophy

Prof. Panaino arrived at Tel Aviv University as an IAS Visting Lecturer, from December 15 to December 25, 2022. During that period, Prof. Conant participated actively in three different events.



Invitation to the lectures of Prof. James Conant

On December 19, he gave a lecture entitled 'Wittgenstein on Forms of Life' at the international conference Teleology and History. The talk was well attended and stimulated a lively discussion among scholars and students alike.

On December 20, Prof. Conant participated in a graduate seminar I lead on Stanley Cavell. His presentation sparked an in-depth dialogue with the participating students, who greatly benefited from his insights and generous engagement.

The highlight of his visit took place on December 21, when an international workshop was convened around the volume The Logical Alien: Conant and his Critics—a book devoted to Prof. Conant's philosophical contributions

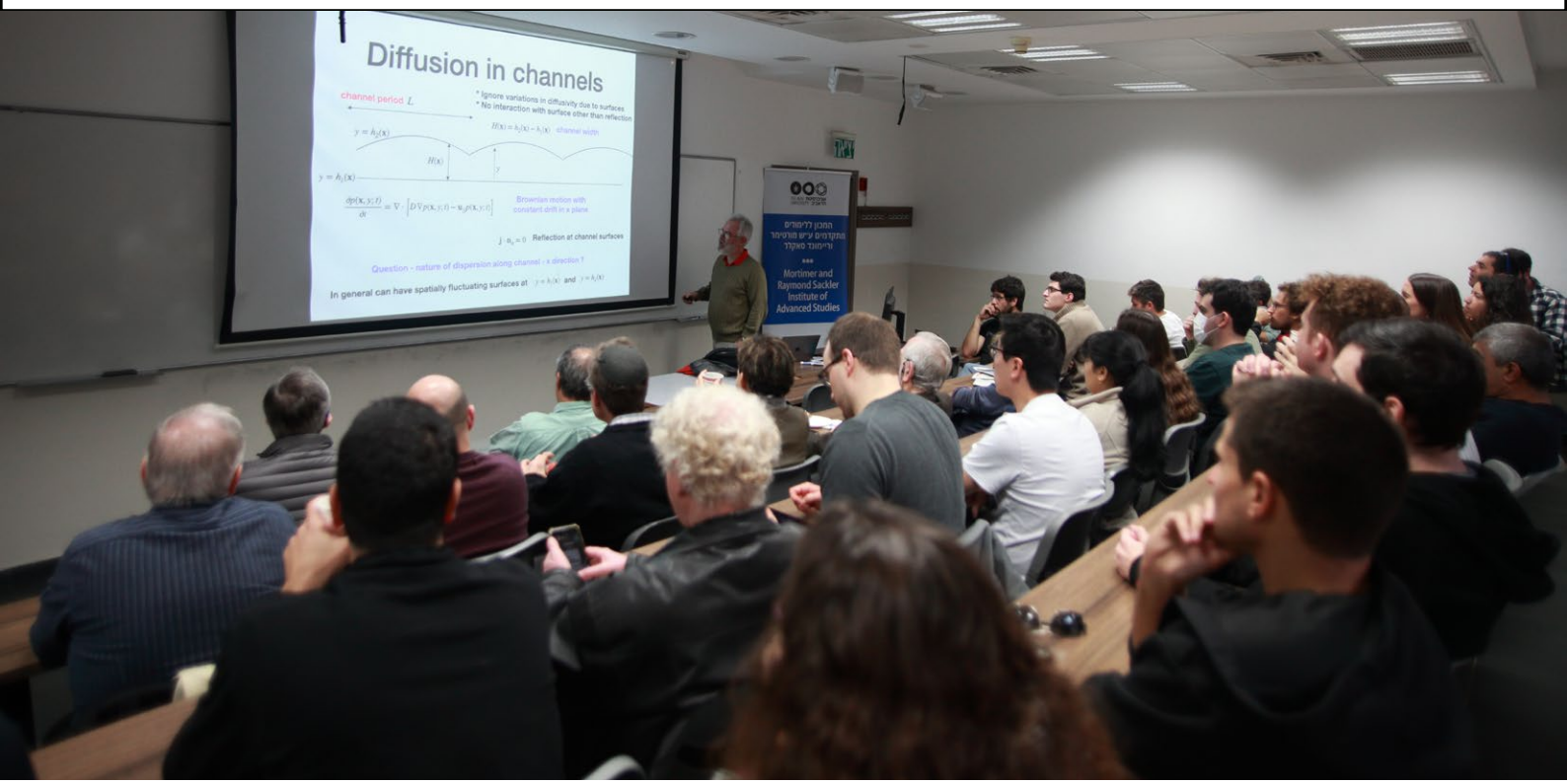
Academic host Prof. Elie Friedlander and Prof. James Conant

and largely authored by him. The workshop featured four lectures by prominent scholars, followed by a detailed and thoughtful response by Prof. Conant himself, showcasing his critical precision and openness to dialogue.

In addition to these academic events, Prof. Conant used his visit to explore possibilities for long-term collaboration between Tel Aviv University, the University of Chicago, and the University of Potsdam. These discussions laid the groundwork for a sustained scholarly partnership, which will resume in June and July 2023 with two conferences to be held in Germany.

Prof. Conant's visit left a lasting impression on both faculty and students. His presence enriched the intellectual discourse on campus and helped to strengthen Tel Aviv University's ties with leading institutions abroad. We look forward to continuing this promising collaboration in the forthcoming academic events and future initiatives.

Prof. James Conant engaging with the audience during his lecture



Prof. David Dean

Prof. David S. Dean of the University of Bordeaux, France, visited Tel Aviv University as an las visting Lecturer during January 4 to January 19, 2023. The visit had originally been planned for the winter of 2021 and was postponed because of the pandemic.

Prof. Dean is a Professor of Statistical Physics, Head of the Theory of Condensed Matter Group at the Laboratoire Ondes et Matière d'Aquitaine (LOMA) of the University of Bordeaux, Talence, France. He is also a member of the Council of the Department of Materials and Radiation Sciences at the University of Bordeaux.

Prof. Dean is a renowned expert in non-equilibrium statistical physics and its application to disordered and soft matter. In particular, he has had central contributions to the field of stochastic diffusion equations, one of which is named after him (the Dean-Kawasaki Equation).

During his visit, Prof. David S. Dean delivered two well-received lectures that attracted researchers and students from across the Faculty of Exact Sciences.

On January 10, 2023, he gave a special seminar titled "Effusion of Stochastic Processes in One Dimension", which focused on novel aspects of non-equilibrium statistical mechanics and sparked a rich discussion among participants.

On January 16, 2023, he presented a lecture as part of the Condensed Matter Physics Seminar series, titled "Dispersion in Confined and Fluctuating Systems". In this talk, Prof. Dean explored the theoretical framework and physical implications of transport phenomena in constrained geometries, drawing significant interest from the condensed matter community at Tel Aviv University.

Academic hosts Prof. Haim Diamant, Prof. David Andelman and Prof. David Dean

Both lectures were well attended by TAU faculty members, postdocs, and graduate students.

As anticipated, Prof. Dean met many scientists at the School of Chemistry, School of Physics, School of Mechanical Engineering, and Department of Biomedical Engineering, to discuss science and possible collaborations. He met also postdocs and graduate students who could benefit from the interaction with a scientist of his stature. He expressed in several occasions his excitement about the opportunity to get personally acquainted with the very active community of statistical-physics and soft-matter researchers at TAU.

Thanks to the visit, a new collaboration has been established between Prof. Dean and the group on diffusion in heterogeneous environments. Progress has been remarkably quick and significant results have already reached.

In summary, Prof. David Dean's visit as an IAS Visiting Lecturer was extremely successful.

Prof. David Dean during his lecture

Prof. Howard Stone

The Institute of Advanced Studies hosted Prof. Howard Stone as an IAS Visting Lecturer in January 2023.

Prof. Stone is the Donald R. Dixon '69 and Elizabeth W. Dixon Professor and the Chair of the Mechanical and Aerospace Engineering Department at Princeton University, Princeton, USA. At Princeton University, he is also an affiliated faculty in Chemical and Biological Engineering, the Program in Applied and Computational Mathematics, the graduate program in Molecular Biology and The Lewis-Sigler Institute for Integrative Genomics.

Prof. Stone is a member of the NAS, AAAS, Nat. Acad. of Engineering and Nat. Acad. of Inventors, among many other awards and distinctions. He is well known for his seminal works and scientific leadership on nanofluidics and biomaterials. His two-day visit to the TAU campus was of great benefit to many of our researchers and graduate students.

Acadmic host Prof. David Andelman and Prof. Howard Stone

Prof. Stone's talk drew a lively multi-disciplinary audience coming from physics, chemistry, life sciences, engineering and medicine. His special colloquium on Jan 18, 2023 was entitled: Themes in Complex Fluids: from thin films to electrokinetically controlled transport.

The colloquium was jointly sponsored by the School of Physics, the School of Mechanical Engineering, and the TAU center for Physics and Chemistry of Living Matter. In addition, Prof. Stone had two full days of meetings with various research groups working on biological and soft matter in the Schools of Physics, Chemistry, Mechanical Engineering and even with researchers in the faculties of Medicines and Life Sciences.

Prof. Stone's long and successful career and enthusiasm about science offer a great inspiration to the younger generation, and this can be regarded as the highlight of his visit.

Finally, Prof. Stone mentioned after his return to Princeton, to his academic host Prof. Andleman, that he was extremely delighted about his visit and the warm hospitality that he had received from the TAU researchers as well as from the IAS staff.

The IAS staff preparing the lecture

"I would like to take this opportunity and deeply thank you, the board of the Institute and its administrative staff headed by Ms. Ronit Nevo. The visit of Prof. Stone was arranged in the most impeccable and flawlessly way. Many thanks again for enabling us to have such a successful visit!"

Prof. David Andelman

Ms. Olga Tokarczuk

Nobel Prize Laureate in Litterature, Ms. Olga Tokarczuk, visited the Insitute of Advanced Studies between March 6 to May 20, 2023, as an IAS Visiting Fellow, on the recommendation of the Faculty of Humanities and the School of Cultural Studies.

Olga Tokarczuk studied Clinical Psychology at Warsaw University, Poland. She started working as a psychotherapist, but in parallel, she wrote poems and reviews which she published occasionally in the press. In 1989, after publishing her first book, a collection of poems, she decided to quit psychology to become a full-time writer. She is today the most translated Polish author and one of the most critically acclaimed and successful authors of her generation in Poland, her work has been translated into more than 45 languages.

In 2019, Olga Tokarczuk reached the pinnacle of achievement, when she was awarded the 2018 Nobel Prize in Literature as the first Polish female prose writer for

IAS Director Prof. Marek Karliner opening the public lecutre of Olga Tokarczuk at the Beit Ariela public libary, Tel Aviv, 23.4.23

"a narrative imagination that with encyclopedic passion represents the crossing of boundaries as a form of life".

During her stay in Israel, Ms. Tokarczuk gave two major events. The first event was a conference at the Beit Ariela Public Library in Tel Aviv, held on April 23, 2023. The lecture was on her mystery novel "Drive Your Plow Over the Bones of the Dead". The public event included two short lectures introducing her literary work to the Israeli audience. The lectures were followed by a conversation with the author and with Miriam Borenstein, the translator of her books into Hebrew. The event was fully booked and won much attention and interest from the audience and the press.

The second event, held on campus, on May 2, 2023 was designed as a conversation in a framework of the Creative Writing Program of the Literature Department at the Tel Aviv University, chaired by Mr. Dror Mishani. The conversation with Ms. Tokarczuk was titled "The Tender Narrator" and touched upon issues of literary writing and readership, alongside the climate crisis and the political conditions. The conversation was fascinating and well received by our colleagues and students.

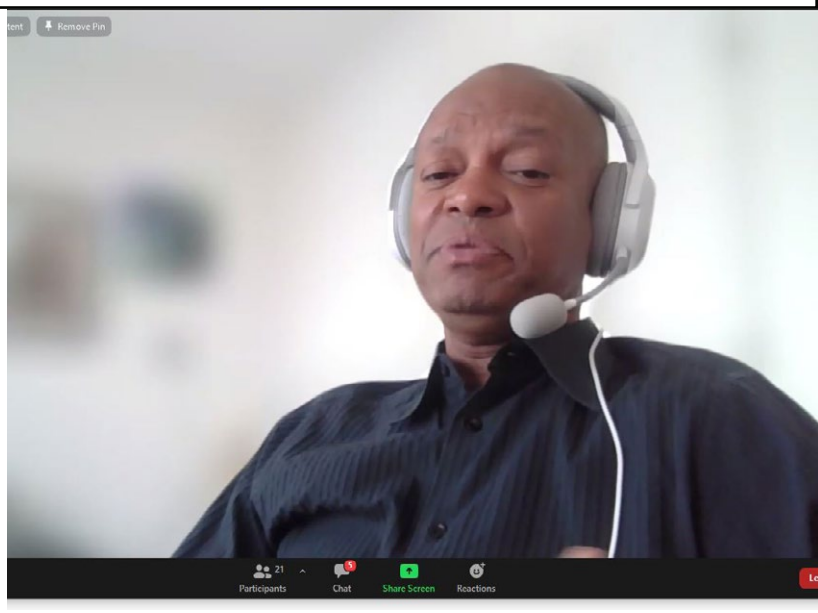
Ms. Tokarczuk's visit left us with a memorable sign, attesting to the tasks, challenges and the achievements of literary writing and scholarship today. It contributed to the excellence of our programs, its diversity and international dimension.

Prof. Marek Karliner (IAS Director), academic host Prof. Galili Shahar and Olga Tokarczu

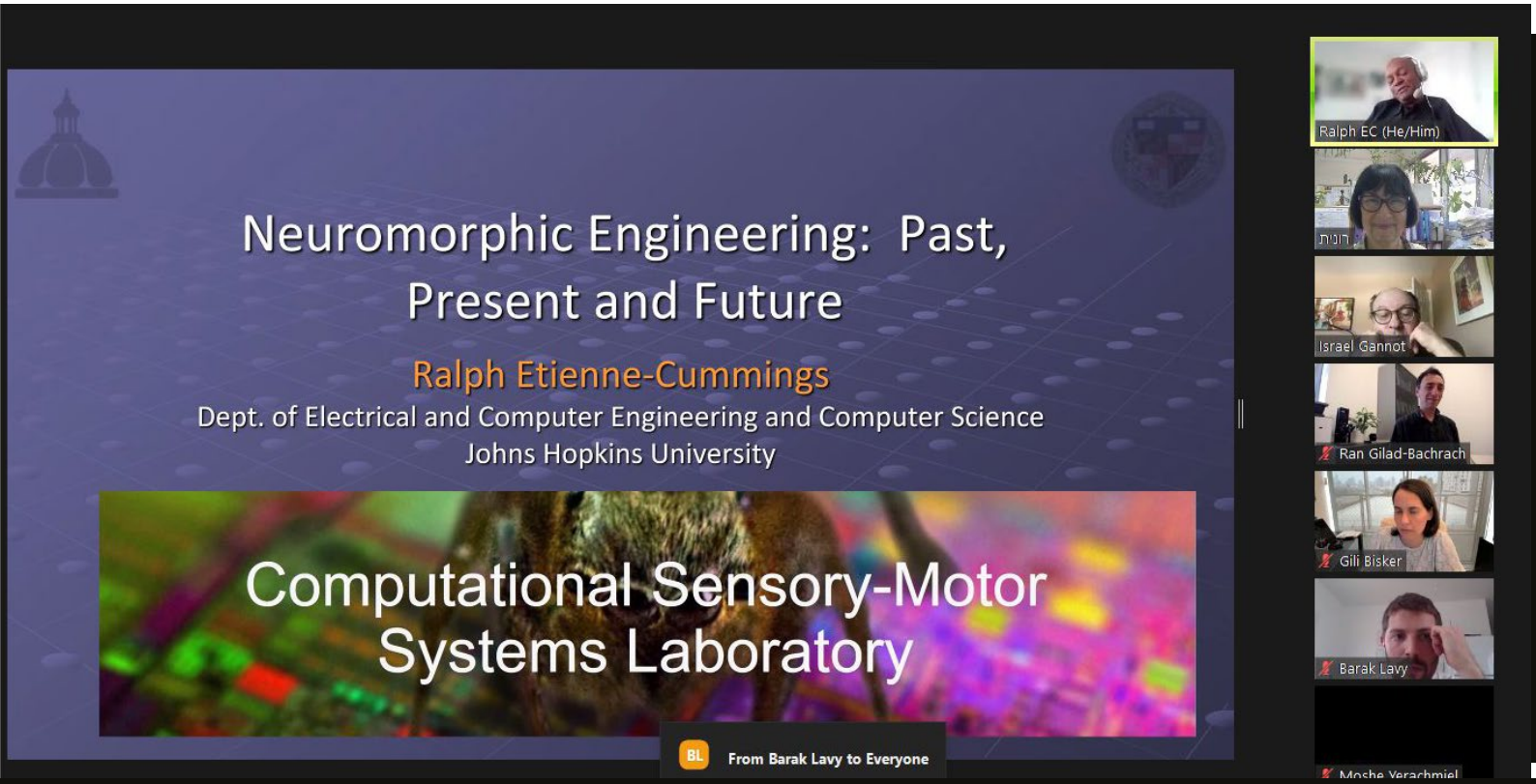
Professor Ralph Etienne-Cummings

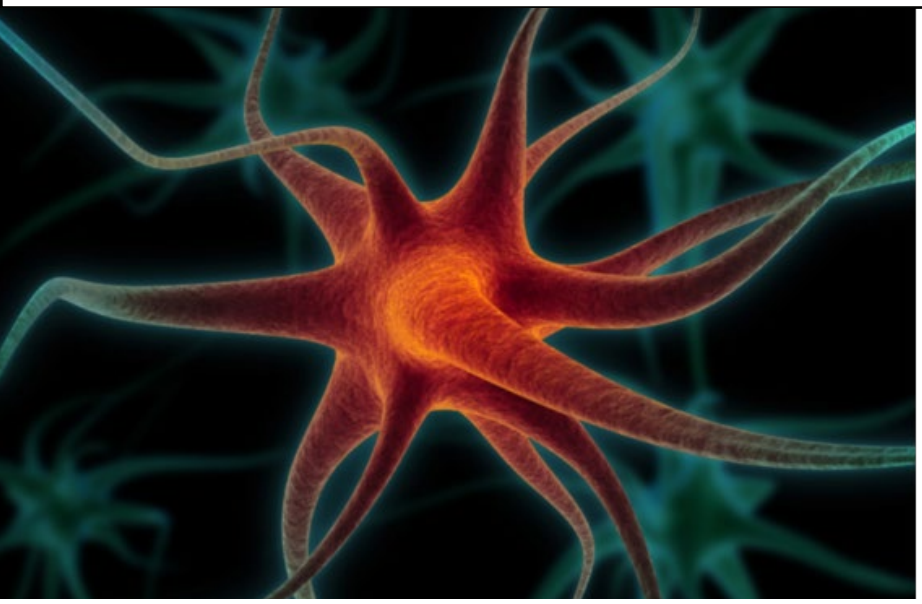
As part of the IAS Visiting Scholars program, we were honored to invite Professor Ralph Etienne-Cummings, a world-renowned expert in Neuromorphic Engineering and Applied Neuroscience, to visit the Institute and engage with our academic community. Due to widespread social protests and a national strike, his arrival had to be postponed. Despite these challenges, Professor Etienne-Cummings generously agreed to deliver a virtual lecture, and we were delighted to host him online on Monday, May 2, 2022.

His lecture, titled "The Age of Neuromorphic Engineering: Past, Present and Future," offered a rich and compelling overview of the evolution of neuromorphic systems—from the field's foundational debates in the 1990s to the emergence of cutting-edge technologies integrating artificial intelligence, robotics, and prosthetics. Professor Etienne-Cummings outlined the contributions of early pioneers, the development of spiking transceiver arrays and digital neuron architectures, and shared his insights on the future convergence of biological and synthetic cognition. The talk was



Professor Ralph Etienne-Cummings during his Zoom lecture



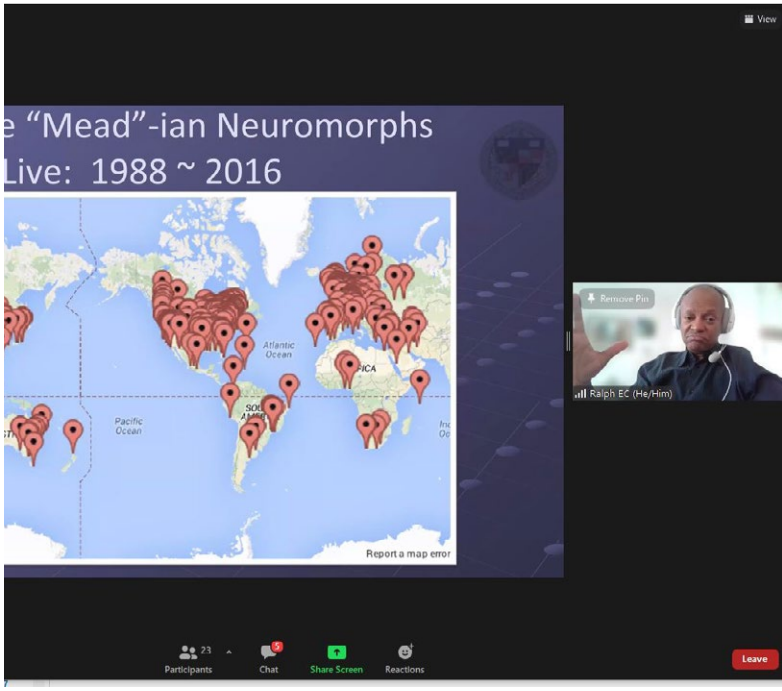


exceptionally well received and attracted an interdisciplinary audience of faculty, students, and researchers from across the university.

Professor Etienne-Cummings is the former Chairman of the Department of Electrical and Computer Engineering at Johns Hopkins University and the founding director of the Institute of Neuromorphic Engineering. A distinguished academic leader, he has served on the Board of Governors of the IEEE Circuits and Systems Society (CAS) and as Deputy Editor-in-Chief of the IEEE Transactions on Biomedical Circuits and Systems. His academic journey began with a B.Sc. in Physics from Lincoln University (1988), followed by an M.S.E.E. (1991) and Ph.D. (1994) from the University of Pennsylvania.

He has published over 230 peer-reviewed articles, contributed to more than 13 books and book chapters, and holds over 10 patents. His research has earned him numerous accolades, including the NSF CAREER Award, the ONR Young Investigator Award, and multiple Best Paper Awards from leading IEEE journals and conferences. Notably, he has received three JHU Discovery Awards for groundbreaking work on neural control of diabetes, ultrasound-based neural stimulation, and resilience modeling in intensive care.

Beyond academia, Professor Etienne-Cummings has been widely recognized for his leadership and contributions to science and society. He was featured in The History Makers archive and inducted into The Johns Hopkins University's "Indispensable Roles of African Americans"



exhibit, alongside such notable figures as Henrietta Lacks and Dr. Ben Carson.

We look forward to welcoming Professor Etienne-Cummings to Tel Aviv University in person in the near future and continuing the dialogue his visit has already begun to inspire.

IAS Distinguished Scholars

The IAS Distinguished Scholars Program supports visits by leading international academics whose work reflects innovation and excellence in their respective fields.

Candidates are selected by the IAS Board based on their academic prominence and the potential for impactful collaboration with existing research groups at Tel Aviv University.

IAS Distinguished Scholars can be invited for a period of either one to two weeks or one to three months and are expected to deliver a few lectures during their visit.

IAS Distinguished Scholars are free to carry out their own research at the University, to collaborate with other researchers in joint work, or to participate in any way they see fit in the life of the University. Many visitors have chosen to give a few lectures in their field of expertise. The lectures are frequently the highlight of the semester and attended by academics from all over Israel.

2022-2023 IAS DISTINGUISHED SCHOLARS

Professor Tom Gunning
Departments of Art History, Cinema and Media Studies, and the College, The University of Chicago, USA

Professor Sandu Popescu
The Bristol Centre for Nanoscience and Quantum Information, School of Physics, University of Bristol, UK

Professor Morten L. Kringelbach
Department of Psychiatry; Director, Centre for Eudaimonia and Human Flourishing, Linacre College; University of Oxford, UK • Department of Clinical Medicine; PI, Center for Music in the Brain; Co-director, Flavour Institute; Aarhus University, Denmark

Professor Ezekiel Emanuel, M.D., Ph.D.
Diane v.S. Levy and Robert M. Levy University Professor; Vice Provost for Global Initiatives; Co-Director, Healthcare Transformation Institute; Professor of Medical Ethics and Health Policy; Perelman School of Medicine and The Wharton School; University of Pennsylvania, USA

Professor Frederick MacKintosh
Abercrombie Professor, Department of Chemical and Biomolecular Engineering; Department of Chemistry; Department of Physics and Astronomy; Rice University, Houston, Texas, USA

Prof. Tom Gunning

It has been our privilege and pleasure to host Prof. Tom Gunning as the IAS Distinguished Scholar, in the framework of The Institute of Advanced Studies.

During his visit, from October 20th to December 20th, 2022, Prof. Gunning gave a plenary public lecture, taught a graduate seminar at The Steve Tisch School of Film and Television, and met in person with several faculty members and students.

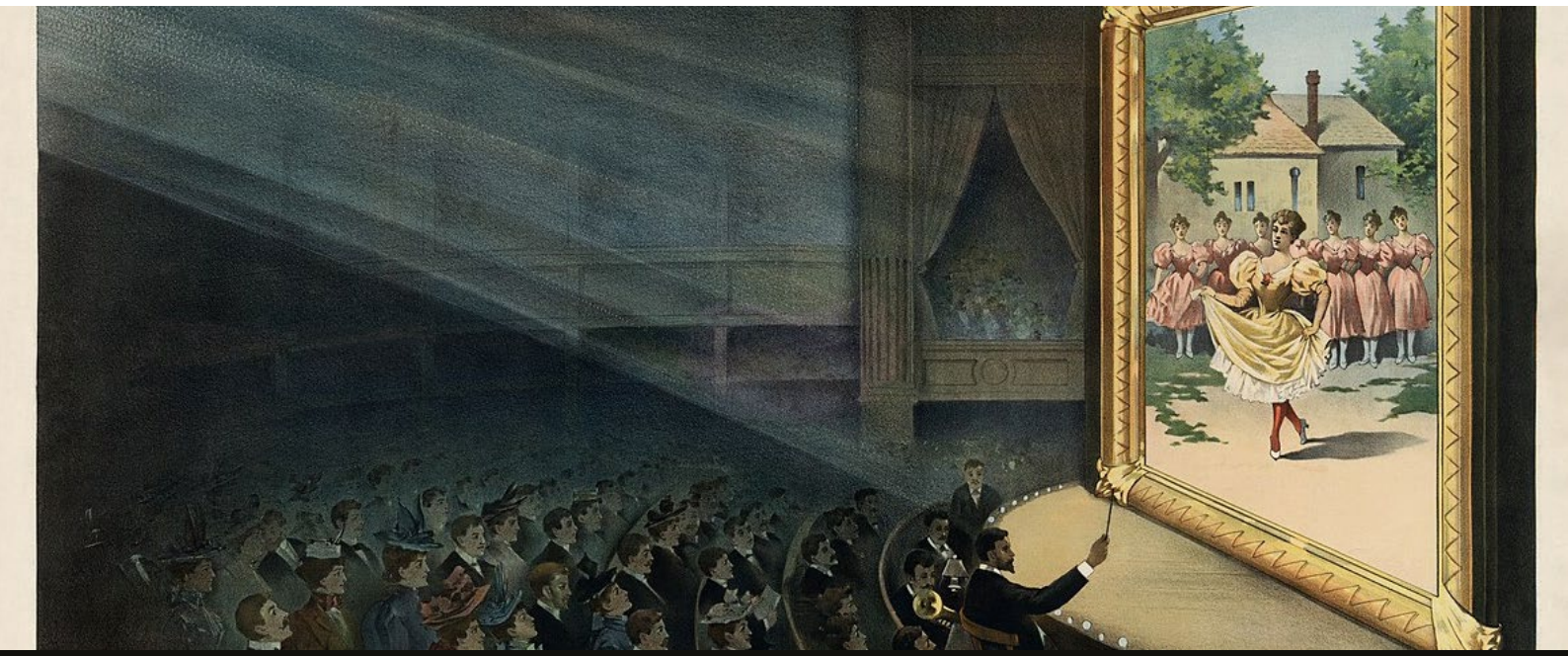
Prof. Gunning is Edwin A. and Betty L. Bergman Distinguished Service Professor from the Department of Cinema and Media Studies and the Department of Art History in the University of Chicago.

He is the author of several monographs, including D.W. Griffith and the Origins of American Narrative Film: The Early Years at Biograph (University of Illinois Press, 1993), which traces the ways in which film style

Prof. Tom Gunning and his academic host Prof. Ohad Landesman

interacted with new economic structures in the early American film industry and with new tasks of storytelling; and The Films of Fritz Lang: Allegories of Vision and Modernity (BFI Publishing, 2000), which emphasizes Lang's reflections on modernity, a time when systems replace individuals.

Prof. Gunning published over 150 essays on early cinema, film history and theory, avant-garde, and film genres. In 2009 he was awarded an Andrew A. Mellon Distinguished Achievement Award, the first film scholar to



receive one, and in 2010 he was elected to the American Academy of Arts and Sciences. He is currently working on a book on the invention of the moving image.

In the graduate seminar he taught at The Steve Tisch School of Film and Television, entitled "Mise-en-Scène Style in Post-World War II Cinema", Prof. Gunning traced the cinematic significance of the term "mise-en-scène" in cinema from World War II until the 1960s. Students in the seminar read and discussed texts by critics and scholars such as André Bazin, Michel Mourlet, Jean-Luc Godard, Jean-Pierre Aumont, Barrett Hodson and Andrew Sarris. Those writers use the film to define a new attitude towards the cinema after World War II, in which the image embodies a sense of the cinema as a world, rather than as a form of discourse. Hollywood filmmakers such as William Wyler, Otto Preminger, and Michael Mann, as well as European directors such as Max Ophüls and Luchino Visconti, were approached in terms of close stylistic analysis.

During his public lecture entitled "The Radical Innovation of the Cinematic Image: Movement and Projection", which was held on November 21st, 2022, Prof. Gunning provocatively explored what the innovation of cinema introduced and how it had changed our conception of the image in ways that we now still take for granted. Prof. Gunning focused on two aspects: the image that moves and the projected image. Both of these events, he showed, changed the way the image relates to things like space, time and materiality. Today they are commonplace elements of our daily environment, but have we

Prof. Tom Gunning and Prof. Ohad Landesman sharing a light moment before the lecture

really recognized their transforming nature?

During his visit, Prof. Gunning met with numerous graduate students and faculty members, and he discussed with collegues possible joint future projects, including his upcoming participation as a special guest in The Steve Tisch School's international colloquium.

His visit has greatly contributed to growing the potential for research collaborations between Tel Aviv University and the University of Chicago. It has been an enormous benefit to the graduate students and researchers and has contributed substantially to our recognition in the international arena.

Invitation to Prof. Tom Gunning's concise seminar on "Mise-en-Scène Style in Post-World War II Cinema

Prof. Sandu Popescu

Prof. Sandu Popescu FRS, from the University of Bristol, had avery successful visit as an IAS Distinguished Scholar at the Insitute of Advanced Studies.

Professor Popescu is one of the world leaders of Foundations of Quantum Mechanics and one of the fathers of the new area of Quantum Information. For his results, he was elected Fellow of the Royal Society and was awarded, among other prizes, the Dirac Medal of the Institute of Physics and the John Stewart Bell Prize.

Professor Popescu has very strong connections with the Mortimer and Raymond Sackler School of Physics and Astronomy, having done his doctoral studies here, under the supervision of Prof. Yakir Aharonov. He continued to collaborate with the Quantum Foundations group here ever since. His visit was therefore of a huge benefit, both for him and for the School of Physics.

Professor Popescu was supposed to come in 2021, but due to the Covid pandemic the original plans had to be modified. The visit was postponed to the end of 2022 and reduced to only two months. Even so, it was very productive.

During his visit, Prof. Popescu interacted intensively with his host, Prof. Lev Vaidman, Prof. Emeritus Yakir Aharonov, as well as with many of our students.

Prof. Sandu Popescu and his academic host Prof. Lev Vaidman

The research focused on the general subject of quantum particles prepared in pre- and post-selected states, one of, arguably, the most important developments in fundamental quantum mechanics, and in which the Tel Aviv School had the pioneering and most important contribution.

Quantum mechanics differs from classical mechanics in almost all aspects. Arguably, however, the most significant is its non-determinism: If quantum particles prepared in exactly the same state are subjected to the same measurement, the outcomes may, in generally, be different. This has been known from the early days of quantum mechanics. However, the main implication of this was discovered in 1964 by Aharonov, in collaboration with Bergman and Lebowitz (ABL), in their quest of understanding the flow of time in quantum mechanics: The result of each measurement yields new information, that was not available at the initial state.

In particular, this has implications for the times in between an initial preparation and a final measurement. A second breakthrough – the concept of "weak" measurements – made by Aharonov, Albert and Vaidman, allowed to approach the original ABL ideas, which were more of the realm of philosophy, from a clear physics perspective, and has led to the discovery of an entire range of new quantum effects and of a reformulation of quantum mechanics.

Two of the specific issues considered during Prof Popescu's visit were:

First of all, the general properties of weak measurements are not yet well understood. In particular, there seems to be a major difference between the cases in which the results of these measurements, the ``weak values", are represented by the so called ``real" numbers and ``imaginary" numbers. The time evolution of the measuring device during the measurement is completely different in the two cases, implying completely different corresponding physical properties which have been hitherto not understood. Considerable progress has been made in collaboration with Vaidman and Aharonov.

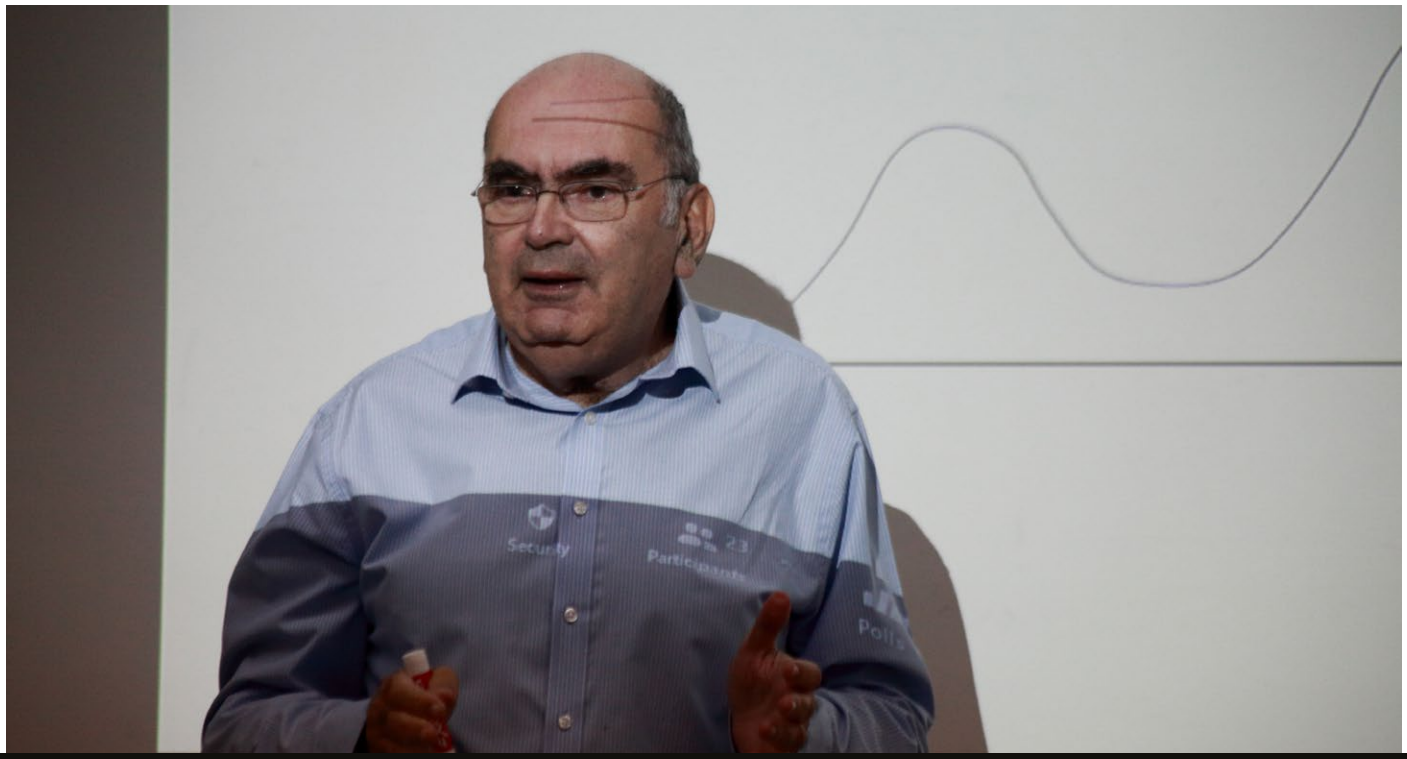
In a different direction, one of the implications of weak measurements is the existence of superoscillations, roughly speaking, of functions that oscillate much faster than expected (technically, functions that are superpositions of only low frequency components but which, in a given interval, can oscillate much faster than the highest frequency component). This had unexpected implications on the issue of conservation laws in quantum mechanics. Conservation laws are some of the most

important laws of physics. Having their origin in the symmetries of nature, conservation laws are present in all our physical theories. There are, however, significant differences between what conservation laws mean in these various theories. In quantum mechanics, which is a theory that is non-deterministic at a fundamental level, the conservation laws, as they are standardly formulated, do not refer to individual experiments but only to the statistics over a large ensemble of repeated identical experiments. While this formulation is perfectly valid, Aharonov, Popescu and Rohrlich felt that it misses essential features of nature, and it can and must be revisited to address the issue of conservation/non-conservation in individual cases. During his visit here Popescu, their ideas, which have been in work for a long time, have finally been completely clarified, and subsequently published in the prestigious Proceedings of the National Academy of Sciences journal (PNAS, 120 (41) e2220810120 (2023)).

He and his collegues have discussed and made progress on many other ideas, progress that would have been simply impossible without daily intensive discussions.

Prof. Popescu has also given two lectures: a School of Physics and Astronomy colloquium: "Quantum Nonlocality and Beyond", and a Theoretical Physics Seminar on "The smallest possible thermal machines and the foundations of thermodynamics". It is safe to say that they have been some of the most popular lectures for a long time. During his visit he also made an important input in the conference on the many-worlds interpretations Prof. Lev Vaidman organized in Tel Aviv and made key-not lecture in Aharonov's birthday celebration at the Israeli Academy of Sciences.

Finally, given the extremely large interest in quantum information and computation in the school, Prof. Popescu had numerous discussions with faculty and especially students, who found them inspiring.



Prof. Morten L. Kringelbach

During the period between February 1 to February 20, 2023, Prof. Morten Kringelbach of Oxford University visited Tel-Aviv University as an IAS Distinguished Scholar and took part in various academic activities.

Professor Morten Kringelbach is a Professor of Neuroscience and a Principal Investigator in the Department of Psychiatry at University of Oxford, UK. He is also the Director of the Centre for Eudaimonia and Human Flourishing and Erel Shalit Carlsberg Foundation Senior Research Fellow at Linacre College. Prof. Kringelbach also holds positions at Aarhus University, Denmark, as Professor of Neuroscience at the Department of Clinical Medicine, Co-founder and Principal Investigator at the Center for Music in the Brain and the Co-director of the Flavour Institute.

Professor Kringelbach has published 14 books and over 400 peer-reviewed scientific papers, book chapters and other articles. He has given numerous scientific lectures and public engagement activities. His interdisciplinary Centre currently hosts 27 scholars, research scientists, doctoral students, as well as many shorter-term national and international visitors.

Professor Kringelbach main research focus is in understanding hedonia (pleasure) and eudaimonia (the life well-lived). Together

with international collaborators, his research uses advanced neuroimaging, neurosurgical and whole-brain modelling methods to understand brain function. Together with Professor Gustavo Deco (Spain), he has recently created Thermodynamics of Mind, a unified theory of brain function.

He is the Director of the Centre for Eudaimonia and Human Flourishing, which convenes and fosters an interdisciplinary team of neuroscientists, philosophers, psychologists, social scientists, physicists, biologists, anthropologists, and artists. The collaborative goal is to clarify underlying psychological, cultural and philosophical issues and connect these discussions to contemporary investigation of the neural mechanisms of emotional and cognitive states. The research teams use philosophical, anthropological and psychological analyses as well as precise neuroscientific paradigms in collaboration with international partners.

On February 16, 2023, Prof. Kringelbach provided a lecture on the topic of "Discovering a Brain hierarchy for flourishing and pleasure". The lecture was attended by faculty members and students from various departments across the campus (Psychology, Neurobiology, Medicine, Neuroscience).

Academic host Prof. Yair Bar-Haim (School of Psychological Sciences) and IAS guest Prof. Morten Kringelbach

On February 20, 2023, Prof. Kringelbach provided a lecture on the topic of "Thermodynamics of mind: New methods for a unified theory". This lecture was also well attended from diverse departments on campus.

During his visit, Prof. Kringelbach worked intensively with two of my PhD students to assimilate MRI data collected in my lab to complex analyses which were developed by Prof. Kringelbach and his colleagues. This work had led to a continuation of a TAU-Oxford collaboration and opened new opportunities for future collaborations, as well as an option for Post Doctorate position for one of our PhD students in Oxford.

Furthermore, Prof. Kringelbach met with several Professors and other academic members from the Psychology and Neurobiology schools and worked with Prof. Yair Bar-Haim on a joint paper.

Prof. Ezekiel J. Emanuel , M.D., Ph.D.

Academic host Dr. Oren Asman, Prof. Yechiel Michael Barilan, Prof. Karen Avraham (Dean, Faculty of Medicine) and IAS Guest Prof. Ezekiel Emanuel.

It is with great pleasure to host Prof. Ezekiel Emanuel as an IAS Distinguished Scholar at TAU. His visit marked the beginning of a large academic project dedicated to the topic of legal and ethical implications of aging and expanded the professional and academic bonds between the TAU faculty and Prof. Emanuel.

Prof. Ezekiel Emanuel is Vice Provost for Global Initiatives, the Co-Director of the Healthcare Transformation Institute, the Diane v.S. Levy and Robert M. Levy University Professor, and Penn Integrates Knowledge (PIK) Professor at the Perelman School of Medicine and The Wharton School, University of Pennsylvania, Philadelphia, USA.

Prof. Emanuel is a Special Advisor to the Director General of the World Health Organization (2019 – present), and served on the Biden-Harris Transition Covid Advisory Board (2020-2021). He is a Senior Fellow at the Center for American Progress and a member of the Council on Foreign Relations.

Prof. Emanuel is an oncologist and world leader in health policy and bioethics, he is the most widely cited bioethicist in history. He has over 350 scientific publications and has authored or edited 15 books. His recent publications include the books "Which Country Has the World's Best Health Care" (2020), "Prescription for the Future" (2017), "Reinventing American Health Care: How the Affordable Care Act Will Improve our Terribly Complex, Blatantly Unjust, Outrageously Expensive, Grossly Inefficient, Error Prone System" (2014) and "Brothers Emanuel: A Memoir of an American Family" (2013).

On March 18, Dr. Oren Asman (Department of Nursing, Faculty of

Medicine), Prof. Emanuel's academic host, picked him up and Dr. Teasel Muir-Harmony from the airport to properly welcome them.

At Prof. Emanuel's request, the IAS managed ticket arrangements for a visit to the ANU – Museum of the Jewish People at TAU, where he went with his significant other on March 20.

On March 20, Dr. Asman organized a welcome dinner for Prof. Emanuel and Dr. Teasel Muir-Harmony with the participation of Medicine Dean Prof. Karen Avraham, Dr. Asman's colleague at the Bioethics and Law Center Prof. Yechiel Barilan and the researcher Dr. Margarita Brusa.

Prof. Emanuel's keynote lecture on 22 March 2023 marked the launch of a joint project (which already led to a second event in May 2023). The title of the keynote lecture was "Thinking Well About Aging" (The Complete Life Perspective) Keynote: Prof. Ezekiel Emanuel, Participants: Prof. YM Barilan, Dr. Oren Asman. The event took place at the School of Health professions, and was very well attended by TAU faculty, research students, and others, including experts from other universities and areas in the country. Very warm responses were received, as several scholars reached out following the lecture.

At dinner, following this event, together with Dr. Segal-Reich, the National Supervisor

At dinner, following this keynote lecture, together with Dr. Segal-Reich, the National Supervisor the Elder at the Israeli Ministry of Justice Legal Aid Administration, Prof. Yechiel Barilan, Prof. Ezekiel Emanuel, Dr. Oren Asman and Dr. Margarita Brusa.

the Elder at the Israeli Ministry of Justice Legal Aid Administration, we continued the discussions in a more intimate and personable setting.

The second event was planned for 27 March 2023, titled "COVID-19 and Health Care Systems: What have we learned thus far?" Keynote: Prof. Ezekiel Emanuel . Participants: Prof. Nachman Ash, Dr. Maya Peled-Raz. It also attracted much interest with a high number of registrants. Prof. Emanuel has sent us his continuously updating presentation several times which increased our anticipation of this event. Unfortunately, on the evening of 26 March, PM Binjamin Netanyahu fired the Defense Minister Yoav Gallant which led to hundreds of thousands of Israelis protesting in the streets that night and a decision of the Universities presidents' committee to strike on March 27th. This led us to notify all participants of the cancellation of this event on the day that it was supposed to take place.

As the lecture plan was now cancelled, Dr. Asman picked up Prof. Emanuel together with Shira L. Zaguri (LCSW), and they toured the Tel Aviv market and had further deliberations over lunch, including about the current situation in Israel and its policy related meanings and implications.

Although the cancellation of the second lecture was an unfortunate development, Dr. Asman regards Prof. Emanuel's visit as a meaningful contribution to fostering international collaboration in both research and public engagement at Tel Aviv University. The two have remained in contact since the visit, and Dr. Asman looks forward to continued collaboration and sharing future developments with the IAS.

Prof. Frederick C. MacKintosh

Academic host Dr. Tomer Markovitch and IAS Guest Prof. Frederick MacKintosh

Prof. Frederick MacKintosh's visit to Tel Aviv University was very successful. The duration of his visit was of two weeks during the month of May, 2023.

Prof. MacKintoshth is the Abercrombie Professor of Chemical and Biomolecular Engineering, Professor of Chemistry and Professor of Physics and Astronomy at Rice University, Houston, Texas, USA.

Prof. MacKintosh is a fellow of the American Physical Society. He has published over 200 papers, which have been cited over 25,000 times. He is one of the leading theoretical scientists in the field of soft biological materials. His key achievements include the development of commonly used models of elasticity and dynamics of biopolymer gels, combined experimental and theoretical advances in microrheology and non-equilibrium, motor-activated gels and active diffusion in cells, as well as the identification of affine to non-affine transitions and critical behavior in fiber networks. His research focuses on the fundamental material properties of biological and soft matter.

His visit started by presenting part of his work in the talk "Mechanical phase transitions and Elastic anomalies in fibrous

Candid moment between Prof. Frederik MacKintosh and Dr. Tomer Markovich

networks" at the BioSoft seminar, which received a lot of attention, and ignited many discussions.

During his almost two weeks visit, Prof. MacKintosh met personally with more than ten faculty members from Physics, Chemistry, Mechanical Engineering, and Biomedical Engineering, where discussions were made on both Prof. MacKintosh work, and the various groups at Tel Aviv University research.

In addition to continuing his collaboration with Dr. Tomer Markovich, during which they discussed three joint projects currently at various stages of publication, Prof. MacKintosh expressed particular interest in the work of Dr. Ayelet Lessman. Dr. Lessman's experimental studies on non-affine effects offer empirical support for some of Prof. MacKintosh's theoretical predictions and were identified as a promising basis for future experimental collaboration.

"I would like to take this opportunity to warmly thank the donors that allowed us to invite Prof. MacKintosh and strengthen his connections with the Israeli BioSoft community. I also thank the IAS for the very welcoming hospitality and the great help in organizing Prof. MacKintosh visit."

Dr. Tomer Markovich

IAS Fulbright-TAU Senior Scholars

The IAS Fulbright–TAU Senior Scholars Fellowship is a prestigious joint initiative between Fulbright and Tel Aviv University, designed to support senior American faculty members who wish to spend a semester conducting research and/or teaching at TAU.

Applications for the fellowship are submitted directly through Fulbright USA. Selected candidates are chosen by both the United States–Israel Educational Foundation (USIEF) and the Board Committee of the IAS at Tel Aviv University.

In addition to its academic excellence, the program aims to foster lasting connections between the United States and Israel by promoting cross-cultural dialogue, scholarly exchange, and international collaboration.

The fellowship is open to senior scholars from all academic disciplines and is awarded for a four-month residency at Tel Aviv University. Fellows are encouraged not only to pursue their primary academic projects but also to contribute to the broader university community by delivering public lectures, mentoring students, and engaging with faculty and peers.

The Institute of Advanced Studies (IAS) serves as the official host and primary point of contact for the fellow during their stay. The hosting academic unit within TAU is responsible for providing office and/or laboratory space, as appropriate to the scholar's field of expertise.

2022-2023 Fulbright-TAU Senior Scholar

Professor Andrea M. Berlin

James R. Wiseman Chair in Classical Archaeology, Department of Religion, Boston University, Massachusetts, USA

Prof. Andrea M. Berlin

Shikhin-style kraters excavated in Northern Israel

Prof. Andrea Berlin spent the spring 2023 semester at Tel Aviv University as a Fulbright-TAU Senior Scholar in the Department of Archaeology and Ancient Near Eastern Cultures and a member of the university's Institute of Advanced Studies.

Prof. Andrea Berlin is the James R. Wiseman Chair in Classical Archaeology in the Program in Archaeology and the Department of Religion at Boston University Boston, Massachusetts, USA. Prof. Berlin has published eight books and many dozens of articles and chapters.

Prof. Berlin has been excavating and leading field projects for over 40 years in the Eastern Mediterranean, working on projects from Troy in Turkey to Coptos, in Southern Egypt. She focuses on the eras of the later ancient empires: the Achaemenid Persians, Alexander the Great and his Hellenistic successors, and the Romans. Prof. Berlin has been an Assistant Director of the Tel Anafa and Banias excavations in Northern Israel, and since 1997 the co-director of the excavations of Tel Kedesh in Northern Israel.

During her stay, Prof. Berlin devoted most of her time to her current book project: "Beyond the Temple: Jewish Material Life from the Maccabees to the Revolt".

Prof. Berlin benefited greatly from the facilities at the department of

Academic host Prof. Yuval Gadot (Head of the Institute of Archaeology) and Prof. Andrea Berln

Archaeology and Ancient Near Eastern Cultures: a quiet office on the 3rd floor of the Gilman Building; the proximity of the Archaeology Institute's library along with its exceptionally competent and helpful staff; and the amazing range of books and journals available at the university's Sourasky Library.

Prof. Berlin gave two public lectures on her work in progress:

- June 1st, at the Albright Institute of Archaeological Research in Jerusalem
- June 12th, at TAU, sponsored and hosted by the Institute of Advanced Studies, titled "Beyond the Temple: Jewish material identity from the Hasmoneans to the revolt".

She also used her time here to visit with archaeologists in the field, and to offer feedback and guidance to several TAU MA students who are working on projects that intersect with my own research interests.

Regarding Prof. Berlin's book being written while visiting TAU: In this upcoming book she uses archaeological remains from the middle of the 2nd c. BCE down to the time of the Great Revolt in 70 CE to show how people's household goods allowed them to craft particular social and cultural identities. She focuses on three moments in time: mid-2nd c. BCE; mid-1st c. BCE; and mid-1st c. CE.

In the first moment, she looks at sites in Idumea and on the coast, where material goods clearly reflect cosmopolitan Mediterranean-infused lifestyles. In the second moment, she contrasts "material identities" in Judea and Galilee. By the time of the third moment, the mid-1st c. CE, the Judean/Galilean divide has disappeared. Now Jews throughout the land embrace two new household items that help mark their homes as Jewish. These items are plain oil lamps and white chalk stone vessels. Both were invented in

Gamla Area G extraction site, Northern Israel. Prof. Andrea Berlin used her time here to visit with archaeologists in the field.

Jerusalem at the end of the 1st century BCE, immediately after the dedication of the new temple.

Prof. Berlin original argument is that Jews used the lamps specifically to usher in the Sabbath, while the stone vessels were, in effect, souvenirs of the new temple. Together these small household items allowed people to connect their homes with the rhythms of the temple and, in so doing, demonstrate a newly emphatic personal affiliation. This phenomenon, which is termed "household Judaism," gave rise to a sense of social solidarity, one that helped consolidate a specifically Jewish identity. In the event, this in turn fed a heightened sense of nationalism, one that, ultimately, was a contributing factor in the catastrophic decision to revolt against Rome.

Prof. Andrea Berlin was hosted by the Institute of Archaeology at Tel Aviv University, where her presence made a valuable contribution to the academic life of the department. During her stay, faculty and students engaged in fruitful discussions with her, and her insights were greatly appreciated. Her forthcoming book is eagerly anticipated by members of the Institute, who look forward to continuing scholarly exchange with her in the future.

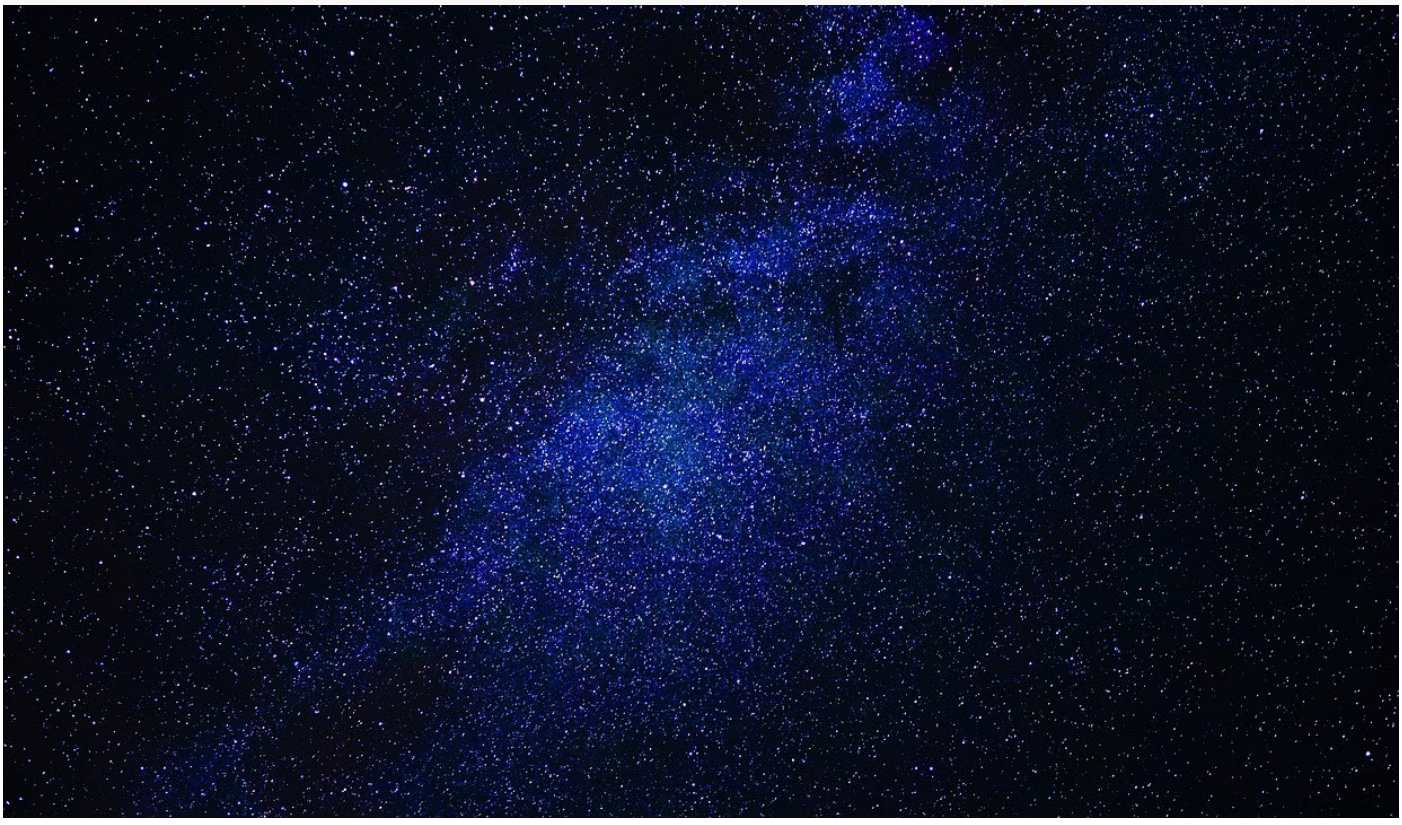
The Distinguished Lectures Series

The Distinguished Lectures Series was established to promote academic excellence at Tel Aviv University by inviting internationally renowned scholars to engage with the University's academic community. The program focuses on six key academic fields: Physics, Geophysics, Chemistry, Mathematics, Pure Mathematics, and Medicine.

Distinguished Lecturers are selected based on their international prominence and contributions to innovative and essential areas of scientific and academic development. They are invited for short-term visits, typically lasting one to two weeks, and are expected to deliver several lectures during their stay, including seminars and public talks that are often widely attended.

In the field of Physics, the Distinguished Lectures Series includes four named memorial lectures, which serve both as academic highlights and tributes to some of Israel's most influential scientists. These are the Michael Dothan Memorial Lecture, the Yuval Ne'eman Memorial Lecture and the Joseph Eisenberg Memorial Lecture.

Candidates for the series are nominated and selected by the coordinators of each academic section, ensuring that each visiting lecturer brings significant added value to their field while strengthening Tel Aviv University's international academic collaborations.



2022-2023 Distinguished Guest Lecturers

Professor David Leigh

Guest Lecturer of the Joshua Jortner Distinguished Lectures in Chemistry • Sir Samuel Hall Chair of Chemistry, University of Manchester, UK.

Prof. Klara Landau, M.D.

Guest Lecturer at the Saul J. Farber Distinguished Lectures in Medicine • Professor Emerita of Ophthalmology, University of Zurich • Delegate of the Medical Education and Equal Opportunity program, University Hospital Zurich, Switzerland.

PD Dr. Med. Konrad P. Weber

Guest Lecturer at the Saul J. Farber Distinguished Lectures in Medicine • Senior Physician, Interdisciplinary Center for Vertigo and Neurological Visual Disorders, University Hospital Zurich, Switzerland.

Professor Michele Parrinello

Guest Lecturer of the Joshua Jortner Distinguished Lectures in Chemistry • Senior Researcher - PI, Italian Institute of Technology, IItaly.

Professor Andrey Golutvin

Guest Lecturer at the Emilio Segre Distinguished Lectures in Physics • Delivered the annual Judah M. Eisenberg Memorial Lecture • Chair. Department of Physics. Imperial College London, UK • Founder and spokesperson, SHiP experiment, CERN, Switzerland.

Professor Matias Zaldarriaga

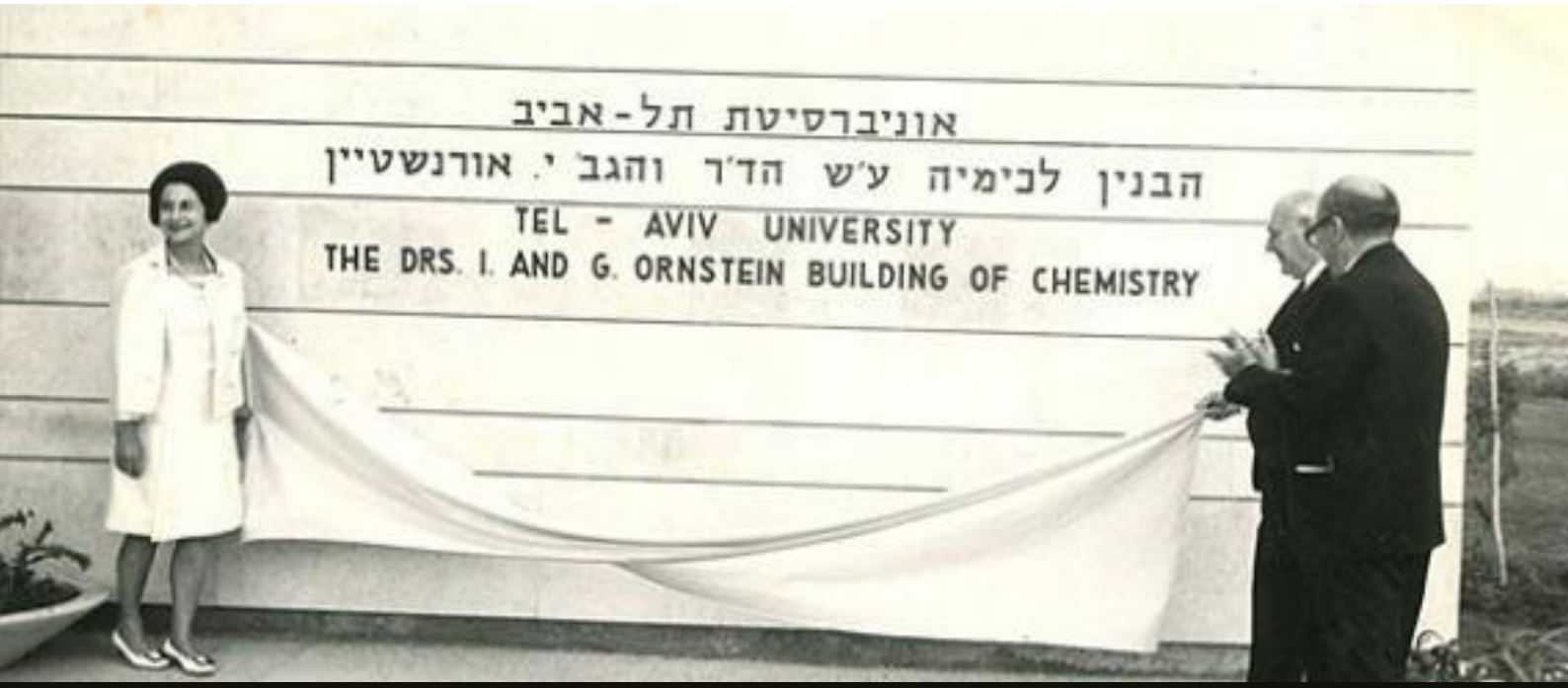
Guest Lecturer at the Emilio Segre Distinguished Lectures in Physics • Delivered the annual John Bahcall Astrophysics Lecture • Richard Black Professor of Astrophysics, School of Natural Sciences, Institute for Advanced Study, Princeton, USA.

Professor Rouven Essig

Guest Lecturer at the Emilio Segre Distinguished Lectures in Physics • Delived the annual Yossef Dothan Memorial Lecture • Professor of Physics, C.N. Yang Institute for Theoretical Physics (YITP), Stony Brook University, USA.

Professor Prof. Eliot Quataert

Guest Lecturer at the Emilio Segre Distinguished Lectures in Physics • Delivered the annual Yuval Ne'eman Memorial Lecture • Professor of Astrophysical Sciences, Charles A. Young Professor of Astronomy, Princeton University, USA.



Prof. David Leigh

Prof. Joshua Jortner introducing Prof. David Leigh

Professor David Leigh, from the Department of Chemistry at the University of Manchester, was selected to deliver the annual Joshua Jortner Distinguished Lecture for the 2019–2020 academic year. Due to travel restrictions and delays caused by the COVID-19 pandemic, his visit was postponed and ultimately took place in the 2021–2022 academic year.

Prof. David Leigh is a Royal Society Research Professor and the Sir Samuel Chair of Chemistry at Manchester University and is a world leader in the fields of synthetic molecular machines and molecular topology. Prof. Leigh was scheduled to visit Tel Aviv University (TAU) on March 2020, a visit that was canceled because of the COVID-19 pandemic, and finally visited TAU on November 2022.

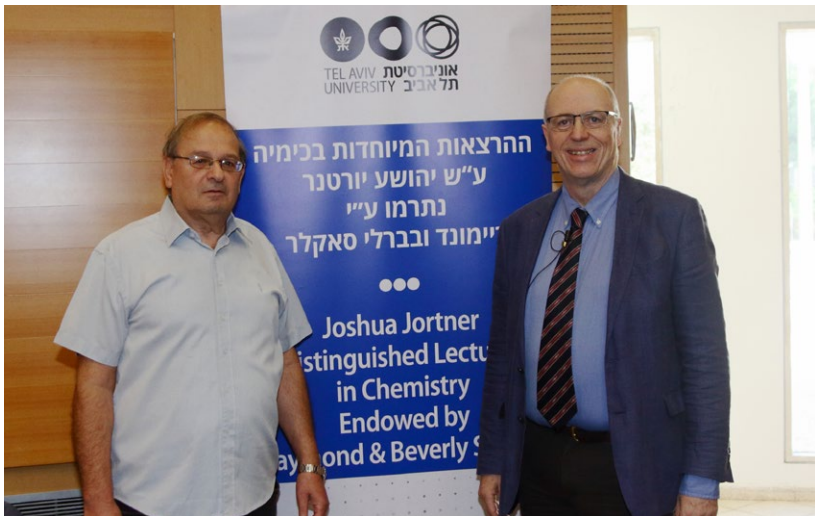
During his visit, Prof. Leigh presented two lectures and met with most of the Faculties of the School of Chemistry including Prof. Joshua Jortner himself. We were pleased that an audience of nearly 100 faculties and students attended the lectures.

The first lecture, titled "Much Ado About Knotting," was held on Sunday, November 6, at 16:00 in Melamed Hall (Room 6), located in the Shenkar Physics Building.

In his lecture titled "Much Ado About Knotting," Prof. David Leigh explored the frontiers of supramolecular chemistry, a field centered on the use of non-covalent interactions to construct complex molecular structures that are often inaccessible through traditional covalent chemistry. One

of the key challenges he addressed is the synthesis of molecular knots—structures that play a crucial role in the behavior of DNA, proteins, and various synthetic and natural polymers. While mathematics has identified billions of prime knots, only a limited number have been realized through chemical synthesis. Prof. Leigh presented the latest advancements from his laboratory, including the creation of some of the most intricate molecular knots and links ever synthesized—among them, a molecular version of the Star of David—as well as recent developments in two-dimensional molecular weaving.

The second lecture, titled "Making the Tiniest Machines," was held on Tuesday, November 8, at 10:30, in The Raya and Josef Jaglom Auditorium, located in the Senate Building. In this lecture, Prof. David Leigh examined the design and development of synthetic molecular machines—a rapidly evolving field at the intersection of chemistry, physics, and biology. While biological systems are powered by highly advanced molecular machinery, recent years have seen the emergence of synthetic analogues, albeit still primitive by comparison. These artificial molecular machines respond to stimuli such as light, chemical inputs, or electrical signals, inducing



Academic host Prof. Yoram Cohen and Prof. David Leigh

controlled motion between interlocked components through weak interactions like hydrogen bonding. Prof. Leigh explained how, rather than relying on deterministic mechanical principles, these systems harness statistical mechanisms to function. Drawing inspiration from Maxwell's Demon, he demonstrated how random thermal motion can be rectified through molecular ratchet mechanisms, ultimately allowing chemical systems to exhibit directed, purposeful behavior

In the lecture, he also discussed the main concepts of making molecular machine and the ratchet mechanism and demonstrated how similar concepts can be applied to other chemical exchange processes. It was demonstrated how ratchet mechanisms, in fact chemical engines in which catalysis of 'fuel' to 'waste' is used to drive another chemical process, cause directional impetus in what are otherwise stochastic systems, including reversible chemical reactions. In the lecture, Prof. Leigh discussed the importance of non- equilibrium chemistry and demonstrated how it provides fundamental advances in functional molecule design, overturning existing dogma and offering fresh insights into biology and molecular nanotechnology.

On this occasion, as Chaim Weizmann, the first President of the State of Israel was on the Faculty of the Department of Chemistry of Manchester University, Prof. Jortner handed to Prof. Leigh a signed copy of the book "Chaim Weizmann: Scientist, Statesman and Architect of Science Policy" edited by Benjamin Kedar.

Prof. Jortner hands to Prof. Leigh a signed copy of the book "Chaim Weizmann: Scientist, Statesman and Architect of Science Policy" edited by Benjamin Kedar.

Here are few words of Prof. David Leigh to Prof. Jortner after the visit " I just wanted to write to thank you and the Sackler Foundation so much for the honor of giving the latest series of Joshua Jortner Distinguished Lectures. The hospitality that greeted me was warm, the conversations inspiring, and the young people a delight to interact with! I'm particularly pleased with your gift of Benjamin Kedar's book on Weizmann…..".

" I wish to take this opportunity to thank Raymond and Beverly Sackler, the Institute of Advanced Studies (IAS) and the IAS personnel for the great hospitality and for making this visit a success "

Prof. Yoram Cohen

Prof. Klara Landau, M.D.

Prof. Klara Landau and her academic host Dr. Daniel Rappoport (Chairman, Israeli Neuro-Ophthalmology Society)

Prof. Klara Landau, M.D., visited the Institute of Advanced Studies between January 19 to January 29, 2023.

Prof. Klara Landau is a world-renowned neuro-ophthalmologist and strabismus surgeon. She was the director of Switzerland's largest ophthalmology department at the University Hospital, Zurich, and past president of the European Neuro-Ophthalmological Society (EUNOS).

Prof. Landau academic career has been decorated with several reputed awards and funding. Prof. Landau has authored 137 peer-reviewed scientific papers, 20 review articles and 16 book chapters. She is the past president of the Swiss Ophthalmological Society and the European Neuro-Ophthalmology Society. Today, she is the president of the Swiss chapter of "Light for the World", an NGO promoting eye health and inclusion of disabled persons in Sub-Saharan Africa.

Prof. Landau was invited to Israel by the Israeli Neuro-Ophthalmological Society (a part of the Israeli Ophthalmology Society) for lectures in her field of expertise.

On Friday, January 20th, Prof. Landau gave three lectures at the Lola Hall, Sackler School of Medicine, as part of the Saul J. Farber Distinguished Lectures in Medicine.

The first lecture was in honor of prof. Riri Manor, the founder of the Israeli Neuro-Ophthalmological Society. Prof Landau discussed the importance of visual fields in neuro-ophthalmology and gave some fascinating examples from her clinical experience.

In her second lecture, Prof. Landau shared her experience in diagnosing and treating fourth nerve palsies in adults and children, interacting with the audience.

In the final lecture, Prof. Landau discussed the features of high intracranial pressure in children (pseudotumor cerebri) and some pitfalls in making the right diagnosis.

The audience comprised of 100 participants, including ophthalmology residents, general ophthalmologists, and neurologists.

After the lectures, Prof Landau met with some of the members of the Israeli Neuro-Ophthalmological Society for case discussion and knowledge exchange.

Prof. Klara Landau exchanging ideas colleagues during her talk

" We and Prof. Landau would like to thank the Institute of Advanced Studies and the Sackler foundation for their generous donation, support, and hospitality. "

Prof. Rita Ehrlich
Head of Ophthalmology

PD Dr. Med. Konrad P. Weber

IAS Guests PD Dr. Med. Konrad Weber, Prof. Klara Landau andtheir academic host Dr. Daniel Rappoport (Chairman, Israeli Neuro-Ophthalmology Society)

PD Dr. Med. Konrad Weber visited the Institute of Advanced Studies between January 19 to January 29, 2023, together with Prof. Klara Landau (mentioned above). He was invited as well to Israel by the Israeli Neuro-Ophthalmological Society for lectures in his field of expertise.

Dr. Weber is a senior physician and researcher at the Interdisciplinary Center for Vertigo and Neurological Visual Disorders at the University Hospital Zurich, Switzerland. Dr Weber is a very active researcher in the field of neuro-ophthalmology and neuro-otology and is a member of the European Neuro-Ophthalmology Society (EUNOS) board. His research focuses on measurements of ocular motility, diagnosis of vertigo and ocular myasthenia gravis.

Dr. Weber gave his fascinating talk on Friday, January 20th, at the Lola Hall, Sackler School of Medicine, as part of the Saul J. Farber Distinguished Lectures in Medicine.

Dr. Weber's interactive talks included a summary of the vestibular system, focusing on the vestibulo-ocular reflex function and pathologies, and reviewed some of his research projects on the subject. He showed some clinical examples, involving the audience by conducting an interactive digital quiz. The audience, comprised of 100 participants, including ophthalmology residents, general ophthalmologists, and neurologists participated enthusiastically.

After the lectures, Dr. Weber met with some of the members of the Israeli Neuro-Ophthalmological Society for case discussion and knowledge exchange.

Prof. Michele Parrinello

The Joshua Jortner Distinguished Lecturer for the year 2022-2023 was Professor Michele Parrinello from the Italian Institute of Technology, Genova, Italy. Previously, Professor Parrinello was a Professor of Computational Sciences in the Department of Chemistry and Applied Biosciences at ETH Zurich, and Università della Svizzera italiana (USI), Lugano, Switzerland. He also served as the Director of the Max Planck Institute for Solid State Research, Stuttgart, Germany, among many other positions across Europe.

He has won numerous very prestigious awards including, most recently, the Benjamin Franklin Medal in Chemistry (with R. Car) from the Franklin Institute (2021); the European Chemistry Gold Medal, from the European Chemical Society (2020); the Dreyfus Prize in the Chemical Sciences, Camille and Henry Dreyfus Foundation, USA (2017).

During his visit, Prof. Parrinello presented two lectures and met with faculty members from the School of Chemistry, Physics and the Faculty of Engineering at TAU, as well as Professors from the Weizmann Institute and the Hebrew University.

An audience of nearly 100 faculty members and students attended the

Warm embrace between Prof. Michele Parrinello and his academic host Dr. Barak Hirshberg

lectures. Prof. Jortner was scheduled to meet with Prof. Parrinello for a scientific discussion and take him to lunch but, unfortunately, the meeting was canceled, because of an unexpected medical examination.

The first lecture was titled "The Physics of Catalysis", and was held on Tuesday, 14 March 2023 at 11:00, in the Raya and Josef Jaglom Auditorium, Senate Building.

The development of efficient catalysts is key to a green economy transition. In this respect, it suffices to mention the need to devise an energy-efficient production of hydrogen or an economical and environment-friendly CO2 sequestration process. However, the large-scale production of chemicals often takes place under extreme conditions of temperature and pressure, so extreme in fact that both simulations and experiments are difficult or impossible. This challenges the conventional picture of catalysis in which a special static configuration of atoms is responsible for the catalytic activity.

Based on state-of-the-art simulations that take advantage of machine learning methodologies, we put forward a different picture. Namely, we associate the catalytic activity with a change in the physical state of the interface. Such a change can be induced for instance by the temperature or by the reactants

themselves. We exemplify this behavior in the catalysis of ammonia by iron surfaces and the cracking of ammonia by the Li2NH ionic compound. The design of such a catalytic competent interfacial steady state is suggested as a strategy to design new, efficient and stable catalysts.

Prof. Michele Parrinello's lectures drew high attendance and engagement

The secon dlecture was titled "Ammonia Decomposition on Lithium Imide Surfaces: A New Paradigm in Heterogeneous Catalysis" and took place on Thursday, 16 March 2023, at 15:00, in Room 315, Multidisciplinary Building.

The industrial production of commodity chemicals often requires extreme conditions of temperature and pressure. Yet, in industrial reactors, the catalyst remains active for a long time notwithstanding the harsh operating conditions. This challenges a static picture of the catalytic process.

To explain the long-term stability of the industrial catalysts, we invoke instead a highly dynamical scenario. We illustrate this concept with an ab initio quality simulation of the Li2NH catalyzed decomposition of ammonia at T = 750 K. This process has been intensively studied for its possible use in a hydrogen-based economy. However, a full understanding of the way it works is still lacking. We show that when exposed to the reactants, the surface structure of the catalyst changes and a dynamic fluctuating steady state is activated allowing the reaction to proceed until the flow of reagents is discontinued. This interfacial reactive fluctuating state is induced by the reaction of ammonia with the surface imides NH2- + NH3 → 2NH2-.

Dr. Barak Hirshberg and Prof. Michele Parrinello

This discommensuration induces large fluctuations in the top surface layers, which now behave almost like an ionic liquid. In this activated environment, a series of reactions that eventually lead to the release of N2 and H2 molecules become possible.

At the end of his visit, Prof. Parrinello also stated that he was extremely impressed with the department of physical chemistry and the school of chemistry, that the science was exciting and the discussions were stimulating. He especially emphasized how impressed he was with the young faculty members, their energy, and their creativity.

Prof. Andrey Golutvin

The Institute of Advanced Studies was pleased to host Prof. Andrey Golutvin as the Guest Lecturer for the Emilio Segre Distinguished Lectures in Physics for the academic year 2022–2023. Prof. Golutvin is Chair of the Department of Physics at Imperial College London, UK, and is the founder and spokesperson of the Search for Hidden Particles (SHiP) experiment at CERN.

Prof. Golutvin has collaborated and held responsibilities in leading research programs, such as the ARGUS experiment at DESY, Hamburg, Germany (1984 1993); the GEM experiment at the Superconducting Super Collider (SSP), Texas, USA (1991-1993); the CERN RD 40 project on the quartz fiber calorimetry, Geneva, Switzerland (1993-1995); the HERA B experiment at DESY laboratory, as a project leader of the electromagnetic calorimeter. He collaborated on the LHCb experiment at CERN, as a spokesperson, a convener of the Rare Decays physics group and a leader of the electromagnetic calorimeter project. He is currently the founder and the spokesperson of the Search for Hidden Particles (SHiP) experiment at CERN (2013-present).

Prof. Golutvin is a member of the International Advisory Board of the International Conference on "Hadron Spectroscopy", the International

IAS Director Prof. Marek Karliner, IAS Guest Prof. Andrey Golutvin, Prof. Amiel Stenberg and his academic host Prof. Erez Etzion

Advisory Committees of the "Physics at LHC" conference and the "Hadron Collider Physics" conference. He has advised various international laboratories on scientific policy having served on committees including the INFN scientific committee at LNF (Italy), the Belle Advisory Committee at KEK (Japan) and CERN's Scientific Policy and Large Hadron Collider committees.

During his visit, Prof. Golutvin delivered the annual Judah M. Eisenberg Memorial Lecture on April 23, 2023, titled "SHIP: CERN's Future Experiment to Search for Hidden Particles." In his talk, he presented the goals and scope of the proposed SHiP experiment to the high-energy physics (HEP) community at Tel Aviv University.

Prof. Golutvin was hosted by Prof. Erez Etzion, who also leads the competing MATHUSLA experiment at CERN's Large Hadron Collider. The visit offered an opportunity for scientific dialogue between the two researchers, including discussions on potential collaboration between their respective experiments.

In addition to the public lecture, Prof. Golutvin met with members of TAU's HEP community, visited laboratories, and held in-depth discussions with faculty members. His presence on campus sparked rich academic exchange, and his visit was considered both productive and inspiring.

Prof. Matias Zaldarriaga

Prof. Matias Zaldarriaga, the Richard Black Professor at the School of Natural Sciences of the Institute for Advanced Study at Princeton, USA, visited the IAS between May 5–10, 2023, under the Emilio Segre Distinguished Lectures in Physics program.

Prof. Zaldarriaga is one of only two permanent faculty in Astrophysics at the Institute for Advanced Study in Princeton, one of the most prestigious appointments in academia. At the Institute, Zaldarriaga collaborates with a vibrant group of world-leading postdoctoral fellows with appointments of three to five years, producing a steady stream of impactful scientific work.

Prof. Zaldarriaga has made many influential and creative contributions to our understanding of the early Universe, particle astrophysics, and cosmology as a probe of fundamental physics. Some of his most influential work involves the Cosmic Microwave Background, the faint glow of radiation generated by the Big Bang; he helped find efficient methods to determine fundamental cosmological parameters such as the density of matter from observations of this radiation, and to search for the signature of gravitational waves from the early Universe.

Prof. Matias Zaldarriaga, a leading figure in cosmology, was hosted at Tel Aviv University in May 2025 as the John Bahcall Lecturer in Astrophysics, part of the Distinguished Lectures Series. His visit was hosted by Prof. Rennan Barkana,

who also introduced him at the event.

On May 7th, Prof. Zaldarriaga delivered a special Physics Colloquium, in which he reviewed recent observational advances that have shaped the development of the Standard Cosmological Model. A significant portion of his talk was dedicated to the challenges of interpreting upcoming observations, particularly those related to modeling galaxy formation and clustering. He also presented some of his recent contributions in this area.

In addition to his lecture, Prof. Zaldarriaga held stimulating and productive discussions with faculty and students across disciplines, including members of the Astrophysics group and the Particle Physics group—among them, Prof. Tomer Volansky.

Prof. Zaldarriaga expressed his appreciation for the warm hospitality and the excellent administrative support he received throughout his stay, and noted how much he enjoyed his visit to Israel.

Prof. Matias Zaldarriaga and his academic host Prof. Rennan Barkana

" These types of visits to TAU are critical for maintaining our strong scientific connections and friendships with leading international figures. I would like to express my gratitude for your support that helps make such scientific exchanges possible. "

Prof. Rennan Barkana

Prof. Rouven Essig

Prof. Rouven Essig from Stony Brook University has visited the Particle Physics department at Tel Aviv University between May 9 to May 14, 2023, as a Guest Lecturer at the Emilio Segre Distinguished Lectures in Physics, delivering the annual Yossef Dothan Memorial Lecture.

Prof. Essig is a famous particle physicist, specializing in dark matter physics and especially on the direct detection of dark matter. His works on new detection techniques to search for light dark matter (with masses below that of the proton) have revolutionalized the field and have led to new technological advancements and numerous experimental endeavors that have opened up a new window into the dark matter parameter space. More notable, Prof. Essig is the co-spokesperson of the SENSEI experiment which leads the search for light dark matter using novel detectors called skipper-CCDs.

Prof. Essig's visit was aimed at collaborating with Prof. Tomer Volansky (also a co-spokesperson at SENSEI) and his group of students and postdocs on SENSEI and other dark matter-related problems. In particular, they have been analyzing new data, measured by SENSEI for the first time at the SNOLAB underground facility. This data, collected over a period of numerous months, allowed them to place world-leading constraints on the presence of various light dark matter models. The paper which summarizes their results was made public a week ago and has been sent for peer review.

During his visit, Prof. Essig and Prof. Volansky's group have also continued working on an additional project related to the propagation of dark matter which carries tiny electric charge, through our galaxy. Such a postulated dark matter candidate is strongly affected by the presence of the stochastic magnetic

fields in the Milky Way, and by the solar wind which must be penetrated in order to reach the Earth. The study has strong implications for the direct detection of such dark matter since terrestrial detection strongly depends on the local dark matter flux. While significant progress has been made during Essig's visit, this project is ongoing and they hope to finalize it in the upcoming months.

During his visit, Prof. Essig gave an excellent Yosef Dothan memorial colloquium, reviewing the status of dark matter direct detection.

With the SENESI results and ongoing projects, Prof. Volansky has no doubt Essig's visit has been very successful and he very much hope to see him at TAU again soon.

Commemorating Prof. Yosef Dothan

Prof. Rouven Essig and Prof. Tomer Volansky

Prof. Eliot Quataert

Prof. Eliot Quataert visited the IAS on June 2023 as a Guest Lecturer at the Emilio Segre Distinguished Lectures in Physics, and delivered the 2023 Yuval Ne'eman Physics Colloquium memoria lecture.

Prof. Eliot Quataert is the Charles A. Young Professor of Astronomy at Princeton University. He is an astrophysics theorist who works on a wide range of problems, including stars and black holes, plasma astrophysics, and how galaxies form. His research utilizes both analytic calculations and numerical simulations. Prof. Quataert is a member of the National Academy of Sciences (2020), the American Academy of Arts and Sciences (2018) and a fellow of the American Physical Society (2009). He has received a number of national awards for his research. Prof. Quataert is also a highly regarded teacher and public lecturer, and serves on several boards and committees.

Academic host Prof. Amiel Stenberg and Prof. Eliot Quataert

He delivered his talk on June 4, 2023. The title of his lecture was "Inward Bound: Horizon-Scale Modeling of Black Holes". Prof. Quataert's talk was a beautiful overview of matter accretion processes near the so-called event horizons of super-massive black holes present in the centers of galaxies across the Universe. With recent breakthroughs in observational technology it is now possible to probe the properties of gas flows and stellar captures in the "strong-gravity" regime where Einstein's General Relativistic effects become dominant. Prof. Quataert is a world renowned expert on theoretical interpretation and simulation studies of these exotic regimes, and his talk was delightful and very educational for the large crowd that attended.

During his visit, Prof. Quataert interacted with many students, postdocs, and faculty in the School of Physics and Astronomy, and new relationships were established.

" I would like to thank you and the Institute of Advanced Studies for generously providing financial support for Prof. Quataert's visit to Tel Aviv University. "

Prof. Amiel Stenberg

Prof. Amiel Sternberg and IAS Administrative Director Ms. Ronit Nevo in conversation before the lecture.

The Nirit and Michael Shaoul Fund for Visiting Scholars and Fellows

Established in 2015 by New York philanthropists Dr. Nirit Weiss and Dr. Michael Shaoul, the fund supports visits to Tel Aviv University by leading scholars from the US, Canada, and Europe across a wide range of academic fields. Selected as Nirit and Michael Shaoul Fellows, these distinguished guests are invited for periods ranging from one week to three months, during which they engage in lectures, collaborative research, and academic exchange with TAU faculty and students.

Fellows are nominated by TAU researchers and selected by the IAS Board for their international prominence and potential to foster meaningful academic collaboration.

Nirit and Michael Shaoul Fellows can be invited for a period of either 1-2 weeks or 1-3 months and are expected to deliver a few lectures during their visit. They are free to carry out their own research at the University, to collaborate with other researchers in joint work, or to participate in any way they see fit in the life of the University.

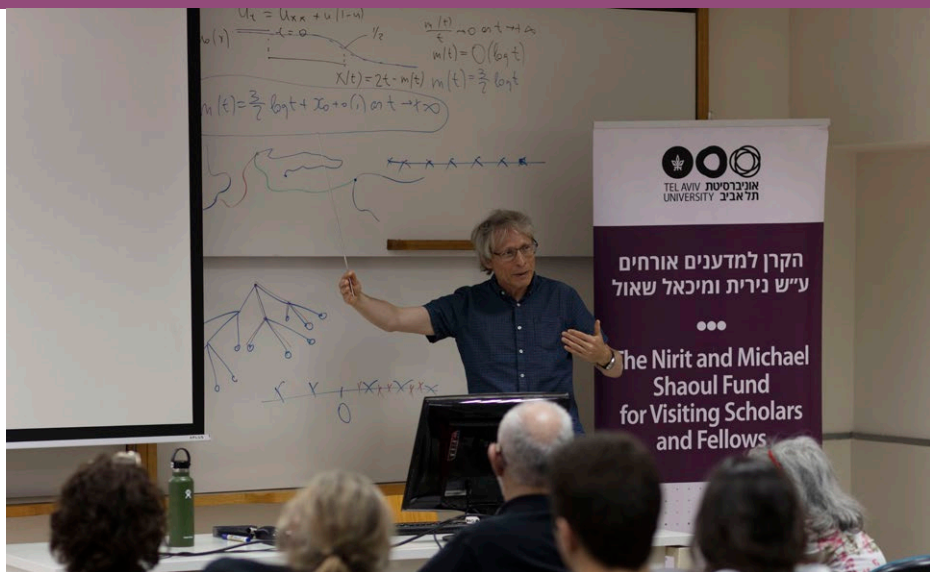
Many visitors have chosen to give a few lectures in their field of expertise. The lectures are frequently the highlight of the semester and attended by academics from all over Israel.

Over the past nine years, the program has hosted more than 50 Fellows and 3 major workshops, enriching TAU's intellectual environment and advancing international research partnerships.

2022-2023 Nirit and Michael Shaoul Fellow

Professor Lenya Ryzhik

Department of Mathematics, Stanford University, USA



Prof. Lenya Ryzhik

Prof. Lenya Ryzhik (Stanford) visited the School of Mathematical Sciences at TAU from April 16 to June 2, 2023.

Prof. Ryzhik is a very broad and deep applied mathematician and analyst. His expertise includes reaction-diffusion equations, stochastic PDE and wave propagation in random media, fluid mechanics, aggregation equations and mathematical biology. He is one of the most influential modern researchers in these areas.

During his stay, Prof. Ryzhik delivered two lectures. The first one was in the framework of the School of Mathematical Sciences' colloquium. He discussed in this talk "The survival of basic spreading PDE models". The Fisher-KPP equation has been proposed, independently, by Fisher and Kolmogorov, Petrovskii and Piskunov in 1937, as a basic partial differential equations model of an invasion in mathematical biology. It became a fundamental model for various spreading phenomena ever since, and was studied very extensively both in the PDE and mathematical biology literature. In 1975, McKean discovered an exact connection between the Fisher-KPP equation and branching Brownian motion, the basic probabilistic spreading model. This was the first of the surprising connections between this partial differential equation and the probability theory. Later, it was

realized that this connects the Fisher-KPP equation to the much larger class of logarithmically correlated random fields. They appear in the seemingly disconnected contexts of random matrix theory, extrema of the Gaussian free field, and the maxima of the Riemann zeta function on the critical line, and all exhibit a certain universal behavior. Availability of the analytic methods makes the Fisher-KPP equation the easiest model to study in this class and allows to compute various universal quantities conjectured to be common to all such models. Independently, other PDE modeling spreading appeared in such diverse problems as voting models on random trees and mean field games models of knowledge diffusion and growth in macroeconomics. In his lecture, Prof. Ryzhik reviewed and explained these connections.

The second lecture, "Diffusion of learning models" was given in the framework of Geometry and Dynamics seminar and was dedicated to applications of mathematics to economics. The notion of diffusion of knowledge goes at least as far back to Chapter 1 of the "Pickwick Papers". However, its mathematical modeling in macroeconomics is much more recent. Prof. Ryzhik discussed some models proposed by the Nobel Prize winner R. Lucas and B. Moll about ten

Prof. Lenya Ryzhik and academic host Prof. Leonid Polterovich

years ago. Various versions lead to the mean field games type PDE and also infinite-dimensional optimal control Hamilton-Jacobi problems. Prof. Ryzhik discussed the mathematical progress and mostly focused on the modeling and open questions aspects.

Additionally, Prof. Ryzhik and his acadmic host Prof. Leonid Polterovich (The Gordon Chair, School of Mathematical Sciences), collaborated on geometric aspects of non-equilibrium thermodynamics.

In conclusion, the visit was abundantly rewarding. It provided the faculty of exact sciences, postdoctoral researchers, and students with a singular occasion to acquaint themselves with the vanguard of Partial Differential Equations and their applications.

" I seize this occasion to express profound gratitude to the Nirit and Michael Shaoul fund. Their generous contribution was crucial in turning the possibility of Prof. Ryzhik's visit into a reality."

Prof. Leonid Polterovich

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