

**The Mortimer and Raymond
Sackler
Institute of Advanced Studies**

**Annual Album
2018/2019**



The Mortimer and Raymond Sackler
Institute of Advanced Studies

המכון ללימודים מתקדמים
ע"ש מורטימר וריימונד סאקלר

Professor Marek Karliner, Director

פרופסור מרק קרלינר, מנהל

September 25, 2019
MK-5108

Sackler Family
One Stamford Forum
Stamford, Connecticut 06901-3431
U.S.A.

Dear Sackler Family,

I am delighted to present to you the 2018/2019 academic year annual album of the Mortimer and Raymond Sackler Institute of Advanced Studies, which summarizes the activities our guests were involved in to straighten the interchange of knowledge and collaborative research. We had the pleasure of hosting a Nobel Prize Laureate in Physics and leading scholars from a wide range of fields and backgrounds:

Yifang Wang	Director of The Institute of High Energy Physics , Chinese Academy of Science Beijing, China
Madan Rao	National Centre for Biological Sciences, Tata Institute of Fundamental Research, Bangalore, India
Derek Penslar	William Lee Frost Professor of Modern Jewish History, Harvard University, USA
Pavel Belov	Dean of Physics and Engineering Faculty, University of Information Technologies, Mechanics and Optics, St. Petersburg, Russia
Shiv Grewal	Chief, Laboratory of Biochemistry and Molecular Biology, Center for Cancer Research, National Cancer Institute, Bethesda ,USA
Wolfgang P. Schleich	Chair of the Theoretical Physics Institute of Quantum Physics, Ulm University, Germany
Duncan Haldane	Nobel Prize Laureate in Physics, Department of Physics, Princeton University, Princeton, USA
Tom Lubensky	Department of Physics and Astronomy, University of Pennsylvania, Philadelphia, USA
Stephen Blacklow	Chair of the Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School, USA
Jennifer Lippincott Schwartz	Senior Group Leader, Howard Hughes Medical Institute Janelia Research Campus, Ashburn, Virginia, USA

I would like to express my sincere appreciation for your generous support, which enables us to bring these eminent scholars to TAU, and facilitates our faculty members in strengthening their international connections and collaborations with top-tier intellectuals worldwide.

With Kind Regards,

Prof. Marek Karliner

Director, Mortimer and Raymond Sackler Institute of Advanced Studies

cc: Research authorities, Ms. Ronit Nevo, Administrative Director, IAS

Encl.

THE MORTIMER AND RAYMOND SACKLER INSTITUTE
OF ADVANCED STUDIES

Academic Year 2018 – 2019

PROF. YIFANG WANG..... October 2018

PROF. MADAN RAO..... October – November 2018

PROF. DEREK J. PENSLAR..... October – November 2018

PROF. PAVEL BELOV October – November 2018

PROF. SHIV GREWAL..... March 2018

PROF. WOLFGANG P. SCHLEICH..... March 2018

PROF. DUNCAN HALDANE..... March-April 2018

PROF. TOM LUBENSKY..... March-April 2018

PROF. STEPHEN BLACKLOW April-June 2018

PROF. JENNIFER LIPPINCOTTE SCHWARTZ..... May 2018

PROFESSOR YIFANG WANG

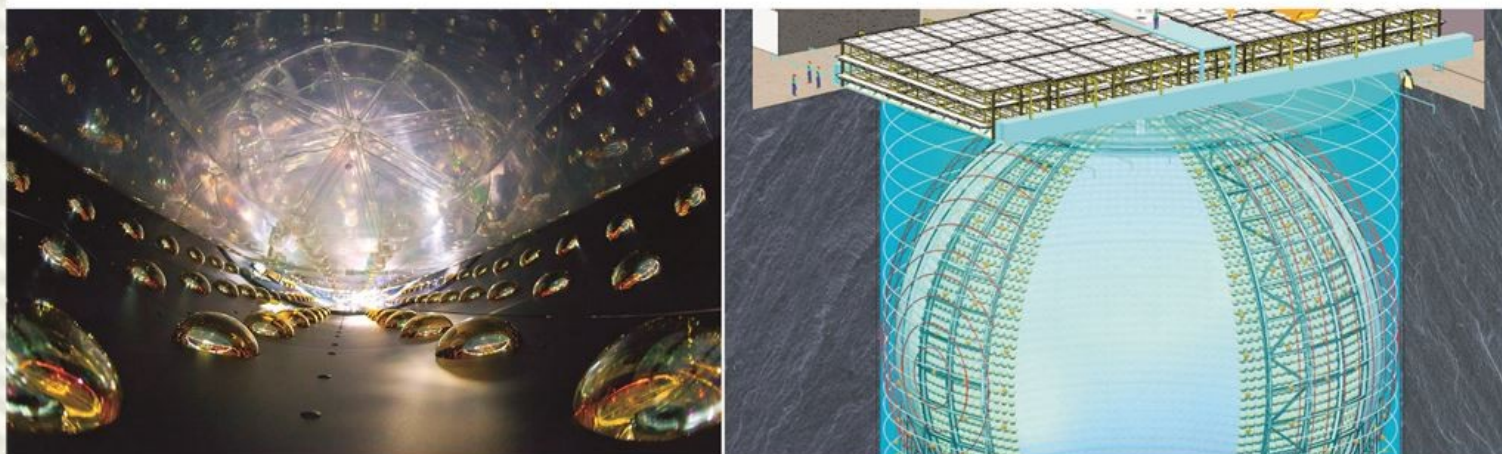


Prof. Yifang Wang, Sackler Lecturer 2018/2019, obtained his B.Sc. on nuclear physics in 1984 at the Nanjing University, China, and his Ph.D. on high energy physics in 1991, at the University of Florence, Italy. Subsequently, he worked at MIT and Stanford University in the US, and returned to China in 2001 as a researcher at the Institute of High Energy Physics (IHEP) of the Chinese Academy of Science in Beijing. Currently, he is the director of IHEP, a member of the Chinese Academy of Sciences and The Third World Academy of Sciences, and a foreign member of the Russian Academy of Sciences.

While in Europe and the US, Prof. Wang participated in many leading high energy physics experiments and was a member of the L3, AMS, Palo Verde and KamLAND collaborations. At IHEP, he led the design, construction and science effort of the BESIII experiment, at the Beijing Electron-Positron Collider, as the project manager and spokesperson. Recently, he proposed the Circular Electron-Positron Collider (CEPC) as the Higgs Factory for the future of high energy physics.

Prof. Wang initiated the Daya Bay reactor neutrino experiment in China and led its design, construction and science effort. This experiment established, for the first time, the neutrino mixing angle, θ_{1-3} , to be non-zero. Currently, he is leading the JUNO neutrino experiment to measure the neutrino mass hierarchy.

Prof. Wang published more than 300 scientific papers and is the chief editor of two books. He received numerous prizes and awards, among them are *ZHOU Guangzhou Basic Science Award*; *Ho Leung Ho Lee Foundation for scientific and Technological Progress Award*; *Breakthrough Prize in Fundamental Physics*; *Panofsky Prize for Experimental Particle Physics*; *Nikkei Asia Prize for Science, Technology and Environment*; and the *Pontecorvo prize*, for his achievement of the Daya Bay experiment.



פרופסור יפאנג וואנג

מנהל המכון לפיזיקת חלקיקים,
האקדמיה הסינית למדע
בייג'ינג, סין

Professor Yifang Wang

Director of The Institute of High Energy Physics (IHEP),
Chinese Academy of Science
Beijing, China

סמינר מיוחד בפיזיקת חלקיקים | Special HEP seminar

FROM DAYA BAY TO JUNO

Abstract

Reactor neutrinos are perfect tools for neutrino oscillation studies. I will review a little bit the history and introduce the Daya Bay experiment, including its design, R&D, construction, and physics results. The newly constructed JUNO experiment is not only a reactor neutrino experiment for the mass hierarchy and oscillation, but also for supernova and other astrophysics studies. I will brief its design and progress of its construction.

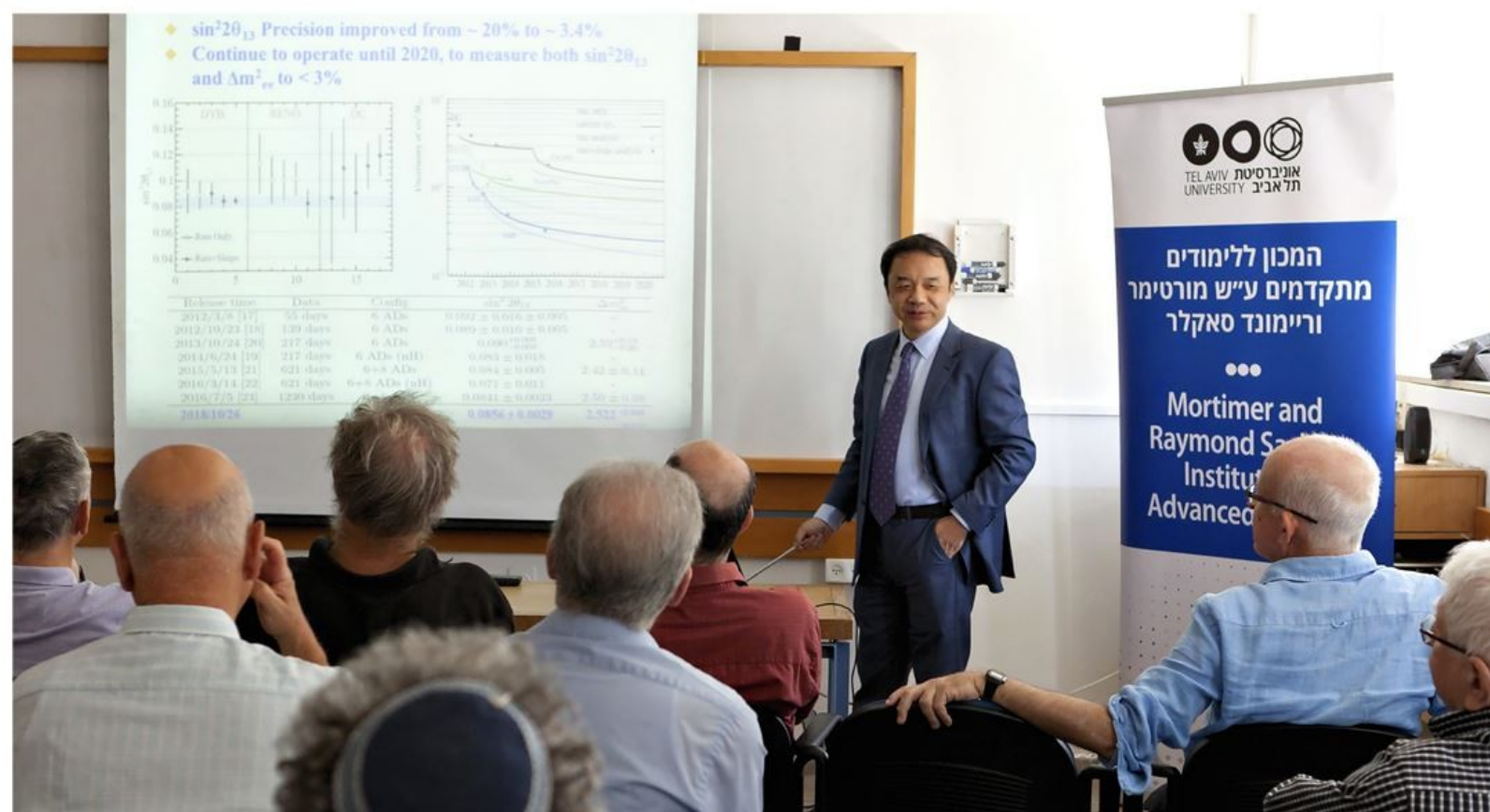
The Seminar will be held on Sunday,
October 28, 2018, at 10:00,
Room 324, Kaplun Building,
Tel-Aviv University, Ramat-Aviv

הסמינר יתקיים ביום ראשון,
28 באוקטובר 2018, בשעה 10:00,
חדר 324, בניין קפלון,
אוניברסיטת תל-אביב, רמת-אביב

כיבוד קל יוגש לפני ההרצאה | Light refreshments will be served before the lecture



Prof. Yifang Wang and Prof. Marek Karlinr - IAS director



Prof. Yifang Wang at his lecture

December 26, 2018

MK- 5035

Scientific report on the visit of Prof. Yifang Wang

Prof. Yifang Wang, the Director of the Institute of High Energy Physics in Beijing, visited TAU between October 26-28, 2018 as a Sackler Lecturer.

Prof. Wang is a world-class experimental particle physicist who leads cutting edge research in this field in China. For his leadership in measuring a fundamental property of neutrinos Prof. Wang was awarded in 2014 the prestigious Panofsky Prize (together with a colleague from Berkeley) and the 2016 Breakthrough Prize. This discovery by the Daya Bay experiment, co-led by Prof. Wang, was the first measurement of a fundamental property of Nature by an experiment based in China. For his outstanding scientific contributions Prof. Wang was elected in 2015 to full membership in the Chinese Academy of Sciences.

During his visit, Prof. Wang gave the Yuval Ne'eman Memorial Colloquium hosted by the Rector, Prof. Yaron Oz and by the physics chairman, Prof. Dan Maoz. The lecture attracted vast faculty audience. Prof. Wang also delivered a specialized seminar for the department of Particle Physics. In addition to the seminar and the colloquium, Prof. Wang had a formal meeting with the Rector and scientific discussions with our faculty and research students. Those meetings were highly inspiring and stimulating.

China is currently considering building the next giant particle accelerator which will be four times larger than the one at CERN. Prof. Wang is spearheading this effort. We have made the first step towards establishing strong academic contacts with Prof. Wang, as he is currently the most important researcher in China in the field of experimental High Energy Physics.

During the visit Prof. Wang told me 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.

Once again, I would like to express my deep appreciation for your continuous support that makes such visits possible.

Sincerely



Marek Karliner
Professor of Physics
Director of the Institute of Advanced Studies

PROFESSOR MADAN RAO



Prof. Madan Rao, Sackler Scholar 2018/2019, is a Senior Professor at the Simons Centre for the Study of Living Machines, National Centre for Biological Sciences (NCBS) - Tata Institute of Fundamental Research (TIFR), Bangalore, India (2016-). He graduated in Physics from the Indian Institute of Technology, Bombay, in 1982, and received his Ph.D. degree in Condensed Matter Physics from the Indian Institute of Science, Bangalore, in 1989. After a three-year postdoctoral stay at Simon Fraser University, Vancouver (1989-1992), he returned to India for his first faculty position at the Indian Institute of Technology, New Delhi (1992-1993).

During the years 1994-1998, Prof. Rao held a faculty position at the Institute of Mathematical Sciences, Madras, after which he moved to Raman Research Institute, Bangalore, where he stayed as an Associate and then Full Professor until 2016. In parallel, he had Adjunct Professorships at NCBS (1999-2016) and International Centre for Theoretical Studies, Bangalore (2008-present). Over his scientific career, Prof. Rao has stayed as a Visiting Professor in several world scientific centers in USA (Kansas University), Canada (University of Toronto), and Europe (International Centre for Theoretical Physics in Trieste, Italy, and others).

Prof. Rao is one of the founders of the new and fast developing field, Physics of Active Matter, which addresses a broad class of essentially non-equilibrium processes driven by persistent energy input and dissipation. The plethora of phenomena encompassed by this field ranges from hydrodynamic behavior of suspensions and porous media to dynamic processes in membranes and the internal medium of biological cells. The most significant and commonly recognized achievement reached by Prof. Rao over the last decade is a theory of the structural behavior of protein assemblies on the surfaces of biological membranes coupled to the active polymeric systems (cytoskeleton) existing with live cells.

Besides other honors, Prof. Rao was elected as Fellow of the Indian Academy of Sciences (2011) and Fellow of the Indian National Science Academy (2016). He has published over 110 papers; most of which appeared in the highest impact factor journals such as Cell, PNAS, and Phys. Rev. Letters.



פרופסור מדאן ראו

המרכז הלאומי למדעי הביולוגיה
מכון טאטא למחקר בסיסי
בנגלור, הודו

Professor Madan Rao

National Centre for Biological Sciences (NCBS)
Tata Institute of Fundamental Research (TIFR)
Bangalore, India

סמינר ביוסופט | Biosoft seminar

COMPARTMENTALISATION IN THE FACE OF STOCHASTIC TRAFFICKING

The Seminar will be held on Wednesday,
October 31, 2018, at 11:00,
Room 118, Kaplun Building,
Tel-Aviv University, Ramat-Aviv

הסמינר יתקיים ביום רביעי,
31 באוקטובר 2018, בשעה 11:00,
חדר 118, בניין קפלון,
אוניברסיטת תל-אביב, רמת-אביב

סמינר כימיה פיזיקלית | Physical Chemistry seminar

DENSE PHASES OF ACTIVE MATTER

The Seminar will be held on Thursday,
November 1, 2018, at 16:00,
Melamed Hall (6), Shenkar Physics Building,
Tel-Aviv University, Ramat-Aviv

הסמינר יתקיים ביום חמישי,
1 בנובמבר 2018, בשעה 16:00,
אולם מלמד (6), בניין שנקר לפיזיקה,
אוניברסיטת תל-אביב, רמת-אביב

כיבוד קל יוגש לפני ההרצאות | Light refreshments will be served before the lectures



Prof. Madan Rao and Prof. Michael Kozlov



Prof. Madan Rao at his lecture

Prof. Michael M. Kozlov
Joseph Klafter Chair in Biophysics
Department of Physiology and Pharmacology
Sackler Faculty of Medicine
Tel Aviv University

Professor Marek Karliner, Director
Mortimer & Raymond Sackler Institute of Advanced Studies
Tel Aviv University

November 21, 2018

Ref. Visit of Prof. Madan Rao, NCBS, Bangalore, India

Dear Prof. Karliner,

I am writing to report on the stay at Tel Aviv University of Prof. Madan Rao of National Center of Biological Sciences (NCBS), Bangalore, India, as a Sackler Fellow during the period of October 14 - November 14, 2018.

Prof. Madan Rao is one of the leading international experts in theoretical physics of Soft Matter and in theoretical Cell Biophysics. He is one of the founders of physics of Active Matter, a new and fast developing field of physics and biophysics, which has been, recently, joined by a number of TAU researchers.

The major goal of Madan's visit was to meet the faculty members and students of the growing "Bio-soft" community of TAU, which includes members of the faculties of Medicine, Life Sciences, Exact Sciences and Engineering. In the course of his visit, Prof. Rao gave two lectures: Biosoft seminar "Compartmentalisation in the face of stochastic trafficking" on October 31, and Physical Chemistry seminar "Dense phases of Active Matter" on November 1.

Researchers who, together with their group members, met and had detailed discussions with Prof. Madan Rao included: from the Faculty of Medicine – Dr. Eran Perlson and myself; from the Faculty of Life Sciences – Prof. David Sprinzak; from Faculty of Exact Sciences - Prof. David Andelman, Prof. Roy Beck, Prof. Yakov Kantor; Prof. Michael Urbakh, Prof. Haim Diamant, Dr. Yael Roichman; Dr. Shlomo Reuveni, Dr. Amit Sitt; from Faculty of Engineering – Prof. Yair Shokef.

These meetings were indispensable for establishing collaborations and served as a platform for future joint projects between the researchers of Tel Aviv University and Prof. Rao as well as the experimental laboratory of Prof. S. Mayor at NCBS, India.

Taken together, the visit of Prof. Rao greatly contributed to the development and progress of biophysical and Soft Matter Physics programs at TAU initiated by the TAU President and involving members of different faculties. The scientific connection to this world leader scientist and his institution (NCBS), which is one of the strongest in India, is crucial for strengthening the position of TAU in the international scientific community.

Importantly, Prof. Madan Rao is a great friend of Israel and expressed a strong will to come back to TAU for a long-term visit.

All the members of the Biosoft community of Tel Aviv University are very grateful to the Sackler Institute of Advanced Studies for enabling Professor Rao's stay at TAU and to the institute staff headed by Ms. Ronit Nevo for a perfect organization of the visit.

Sincerely,



Michael Kozlov

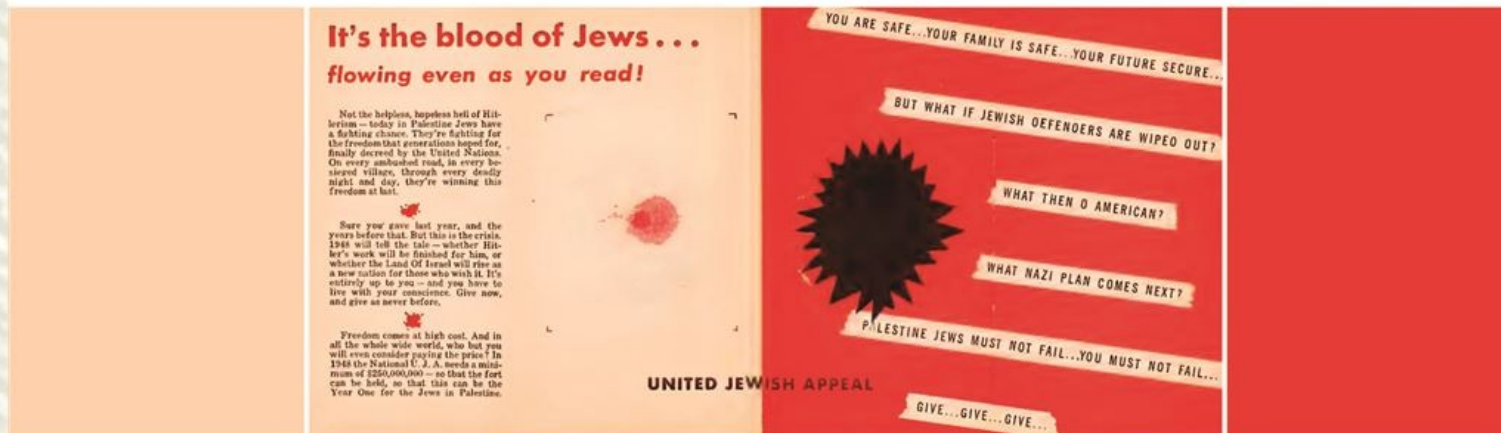
PROFESSOR DEREK PENSLAR



Prof. Derek Penslar, Sackler Lecturer 2018/2019, is the William Lee Frost Professor of Modern Jewish History at Harvard University and the Samuel Zacks Professor of Jewish History at the University of Toronto. He approaches modern Jewish history from a transnational and global perspective. His work encompasses the history of the Jews in modern West and Central Europe, North America, and Israel. He is particularly interested in the relationship between modern Israel and diaspora Jewish societies, global nationalist movements, European colonialism, and post-colonial states.

Prof. Penslar has taught at Indiana University, Bloomington, the University of Toronto, and Oxford University, where he served as the inaugural Stanley Lewis Professor of Modern Israel Studies from 2012 until 2016. He co-edits (with Anita Shapira) *The Journal of Israeli History* and serves on the editorial boards of *The Journal of Jewish Studies*, *Jewish Social Studies*, and *Israel Studies*. He is a Fellow of the Royal Society of Canada and of the American Academy for Jewish Research.

Prof. Penslar's books include *Zionism and Technocracy: The Engineering of Jewish Settlement in Palestine, 1870-1918* (1991); *In Search of Jewish Community: Jewish Identities in Germany and Austria, 1918-1933* (1998, co-edited with Michael Brenner), *Shylock's Children: Economics and Jewish Identity in Modern Europe* (2001); *Orientalism and the Jews* (co-edited with Ivan Kalmar, 2004), *Israel in History: The Jewish State in Comparative Perspective* (2006); *The Origins of the State of Israel 1882-1948: A Documentary History* (with Eran Kaplan, 2011) and *Jews and the Military: A History* (2013). He is currently finishing his work on the book: "Theodor Herzl: The Charismatic Leader" (for Yale University Press' "Jewish Lives" series) and starting research for a new book, *Zionism: An Emotional State* (for Rutgers University Press' "Keywords in Jewish Studies" series).



דerek יונתן פנסלר

פרופסור ע"ש ויליאם לי פרוסט להיסטוריה יהודית מודרנית

אוניברסיטת הרווארד

Derek Jonathan Penslar

William Lee Frost Professor of Modern Jewish History
Harvard University

Lecture | הרצאה

ANTI-SEMITISM AND ZIONISM: IDEOLOGIES OR EMOTIONS?

Chair: Prof. Iris Rachamimov
Introductory Remarks: Prof. Motti Golani

יו"ר: פרופ' איריס רחמימוב
דברי פתיחה: פרופ' מוטי גולני

The Lecture will be held on Tuesday,
October 23, 2018, at 18:00,
Room 281, Gilman Building,
Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום שלישי,
23 באוקטובר 2018, בשעה 18:00,
חדר 281, בניין גילמן,
אוניברסיטת תל-אביב, רמת-אביב

Lecture | הרצאה

FEAR FROM AFAR? AMERICAN JEWRY AND THE 1948 WAR

Chair: Prof. Anita Shapira
Introductory Remarks: Prof. Aaron Shai

יו"ר: פרופ' אניטה שפירא
דברי פתיחה: פרופ' אהרון שי

The Lecture will be held on Sunday,
October 28, 2018, at 16:00,
Hall 496, Gilman Building,
Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום ראשון,
28 באוקטובר 2018, בשעה 16:00,
אולם 496, בניין גילמן,
אוניברסיטת תל-אביב, רמת-אביב

כיבוד קל יוגש לפני ההרצאות | Light refreshments will be served before the lectures



Prof. Scott Ury, Prof. Orit Rozin, Prof. Derek J. Penslar and Prof. Motti Golani



Prof. Derek J. Penslar at his lecture



The Stephen Roth Institute
For the Study of Contemporary Antisemitism and Racism

Nov. 13, 2018

Dear Prof. Karliner,

We would like to thank Tel Aviv University's Mortimer and Raymond Sackler Institute for Advanced Studies at Tel Aviv University for supporting a recent visit by Prof. Derek J. Penslar of Harvard University to Tel Aviv University.

Over the course of his two-week visit in the fall of 2018, Prof. Penslar, a leading scholar of both modern Jewish and Israeli histories, met with a number of faculty members and graduate students, presented his research in two public lectures, and took part in a number of other meetings and discussions. This was an extremely successful visit that not only greatly contributed to the academic and intellectual life at TAU but also helped highlight the vibrant intellectual and scholarly atmosphere for which Tel Aviv University is widely known.

In addition to presenting part of his current research on "Antisemitism and Zionism: Ideologies or Emotions" on October, 23, Prof. Penslar also delivered a lecture on "Fear from Afar: American Jewry and the 1948 War." Both presentations were advertised through university and other channels and, as a result, were attended by a wide range of faculty and students from Tel Aviv and other Israeli universities who asked engaging and at times challenging questions regarding Prof. Penslar's research.

Prof. Penslar was also generous enough to meet separately with no less than seven graduate students from Tel Aviv University's School of Jewish Studies and School of History to learn about and advise them on their MA or PhD thesis. These meetings not only offered graduate students at TAU the opportunity to receive critical feedback from a central figure in their field, but also exposed Prof. Penslar to some of the dynamic, cutting-edge research currently undertaken at TAU.

In addition to delivering two presentations and meeting with TAU graduate students, Prof. Penslar also gave an hour-long interview to the local podcast "Tel Aviv Review" (which receives between 15,000-20,000 downloads a month), and met with a producer who is

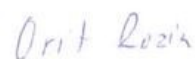
The Stephen Roth Institute
For the Study of Contemporary Antisemitism and Racism

interested in doing a film on Theodor Herzl. Prof. Penslar was also invited to lead a seminar at the Technion's School of Architecture and while we didn't attend the event, we understand that the conversation was both lively and enriching.

These and many other activities were made possible by the support of the Sackler Institute for Advanced Studies in cooperation with TAU's Chaim Weizmann Institute for the Study of Zionism and Israel and the Stephen Roth Institute for the Study of Contemporary Antisemitism and Racism.

We are delighted to have had the opportunity to cooperate with the Sackler Institute and its professional staff on this important visit and very much look forward to future cooperative endeavors.

With all best wishes,



Prof. Orit Rozin
Dept. of Jewish
History



Dr. Scott Ury
Dept. of Jewish
History
Roth Institute

PROFESSOR PAVEL BELOV



Prof. Pavel Belov, Sackler Lecturer 2018/2019 – second part of his visit, is the Dean of Physics and Engineering Faculty, Head of Nanophotonics and Metamaterials Department, and Leading Research Fellow of St. Petersburg State University of Information Technologies, Mechanics and Optics (ITMO University), Russia. He received BS, MS, PhD and DSc (Habilitation) degrees from ITMO University, Russia in 1998, 2000, 2003 and 2010, respectively, and a PhD from Helsinki University of Technology in 2006.

Prof. Belov's research interests include analytical and numerical modeling of metamaterials, photonic and electromagnetic crystals, artificial dielectrics and magnetics, as well as microwave, terahertz and optical sub-wavelength imaging using the metamaterials. He is an expert in the areas of Nanophotonics, Metamaterials and Antenna Engineering. Prof. Belov is the author of 13 book chapters, more than 200 reports at international conferences and he co-authored more than 300 papers in scientific journals. He was awarded the Advanced Research Fellowship by the Engineering and Physical Sciences Research Council (EPSRC) and served as PI of more than 15 research grants.

Prof. Belov was awarded the Russian Federation President's Prize in Science and Innovation for Young Scientists (2009). This is the highest recognition of young researchers in Russia. The award was personally presented by President of Russian Federation, Dmitry A. Medvedev. He is also a holder of IET Achievement Award (IET, UK, 2006); International Dennis Gabor Award (Novofer foundation, Hungary, 2003) [The award is granted every 3 years to one outstanding foreign researcher. The award was personally presented by Prime Minister of Hungary, Péter Medgyessy]; URSI Young Scientist Award (Belgium, 2002).



פרופסור פאבל בלוב

דיקאן, הפקולטה לפיזיקה והנדסה,
ראש המחלקה לננופוטוניקה ומטא-חומרים,
האוניברסיטה לטכנולוגיות מידע, מכניקה ואופטיקה, סנט פטרסבורג, רוסיה

Professor Pavel Belov

Dean, Physics and Engineering Faculty,
Head, Nanophotonics & Metamaterials Department,
University of Information Technologies, Mechanics and Optics (ITMO), St. Petersburg, Russia

Seminar | סמינר

ENHANCEMENT OF MAGNETIC RESONANCE IMAGING WITH METASURFACES: FROM CONCEPT TO HUMAN TRIALS

Abstract

Metasurfaces represent a new paradigm in artificial subwavelength structures due to their potential to overcome many challenges typically associated with metamaterials. However, despite the fact that many intriguing functionalities of metasurfaces have been demonstrated as "a proof of the principle", real practical applications of metasurfaces are still missing. One of the potential applications of metasurfaces is magnetic resonance imaging (MRI), where by means of the spatial redistribution of the near field it is possible to strongly increase the scanner sensitivity, signal-to-noise ratio, and image resolution. Here, we stress the importance of metasurfaces for improvement of MRI characteristics and present in vivo results obtained with different types of metasurfaces at high (1.5T) and ultra-high (7T) field MR machines. We propose and discuss methods of tuning eigenmode resonance frequencies of wire metasurfaces. Fine tuning of metasurface properties is essential for maximizing its coupling with transmitting and receiving radiofrequency (RF) coils of a magnetic resonance imaging (MRI) system. We have studied numerically and experimentally two designs of metasurfaces with different tunability mechanisms. The first design is a hybrid structure based on periodic wires with extremities penetrating high-permittivity dielectric volumes, where tunability achieved by changing properties of the dielectric parts. The second metasurface is formed by an array of capacitively loaded telescopic wires that permit to adjust the eigenmode resonance frequencies by mechanical expansion of the wires. Both metasurfaces demonstrated the spectacular capability to locally enhance the magnetic field of an external RF coil being precisely tuned to the Larmor frequency of a clinical MRI scanner.

The Seminar will be held on Monday,
October 29, 2018, at 13:00,
Room 011, Classroom Building, Faculty of Engineering,
Tel-Aviv University, Ramat-Aviv

הסמינר יתקיים ביום שני,
29 באוקטובר 2018, בשעה 13:00,
בחדר 011, בניין כיתות חשמל,
אוניברסיטת תל-אביב, רמת-אביב

Light refreshments will be served before the lecture | כיבוד קל יוגש לפני ההרצאה



Prof. Pavel Belov and Prof. Pavel Ginzburg



Prof. Pavel Belov at his lecture

November 30, 2018

The Mortimer and Raymond Sackler Institute of Advanced Studies

Prof. Pavel Belov- Summary of visit

Dear Supporters,

With this letter I would like to express my gratitude to your generous support, which allows the establishment of highly important and valuable collaboration links with world leading researches from different countries.

Prof. Pavel Belov from ITMO University Russia, was awarded with the lectureship this year. Prof. Belov is a worldwide-recognized leader in the field of applied electromagnetism, where he made many important contributions related to metamaterial-based devices and MRI imaging.

Prof. Belov visited Tel Aviv University for one week in April and another one in November 2018. During his stay here, he delivered two outstanding seminars on the new emerging field of All-dielectric Nanophotonics. The first lecture was on “Recent progress in All- dielectric and hybrid optical antennae and metasurfaces “and the second on “Enhancement of magnetic resonance imaging with metasurfaces: from concept to human trials”, which was attended by many faculty members and students. Furthermore, we had several extensive discussions on different subjects and we are about to start new research directions, related to electromagnetic super scattering and its applications to novel generation of antenna devices and Internet of Things applications. The strong collaboration link that was established between the universities will be maintained via joint educational programs. For example, several international PhD students will join my laboratory soon and will work on the new projects.

In summary, the visit of Prof. P. Belov was very successful, we will be happy to host him here again and continue our collaboration activities. The generous support of the Mortimer and Raymond Sackler Institute of Advanced Studies was very beneficial and enabled us to establish new collaboration links, enlarging the international dimensions of Tel Aviv University.

Kind Regards,

DR. PAVEL GINZBURG

Head of Dynamics of Nanostructures' Laboratory
Tel Aviv University
School of Electrical Engineering
Ramat Aviv 69978, ISRAEL
<http://pavel.ginzburg.info/>
<http://web.eng.tau.ac.il/~ginzburg/>
Email: pginzburg@post.tau.ac.il
+972-3-640-6058

Ainzburg

PROFESSOR SHIV GREWAL



Prof. Shiv Grewal, Sackler Lecturer 2018/2019, is an NIH Distinguished Investigator and is currently serving as the Chief of the Laboratory of Biochemistry and Molecular Biology and the Head of the Chromosome Biology Section of the Center for Cancer Research, National Cancer Institute, National Institutes of Health, Bethesda, MD. He began his scientific career at the University of Cambridge, UK, where he held the prestigious Cambridge-Nehru scholarship. In 1993, he joined the National Cancer Institute as a postdoctoral fellow to pursue his interests in the epigenetic control of gene expression.

Apart from his pioneering work on the role of centromeric repeats in heterochromatin assembly, Prof. Grewal showed that epigenetic imprints can be stably propagated through meiosis and in some instances inherited in *cis*. He also identified factors involved in modifications of histones as key components of epigenetic marking process. Prof. Grewal joined Cold Spring Harbor Laboratory as an Assistant Professor in 1998, and was promoted to Associate Professor position. In 2003, he joined National Cancer Institute, Bethesda as a Senior Investigator.

Prof. Grewal and colleagues discovered a highly conserved connection between RNAi and heterochromatin assembly that has revolutionized the current thinking on how complex genomes are assembled into higher-order chromatin structures. This important contribution was selected as *Breakthrough of the Year 2002* by *Science* magazine. Three papers from Prof. Grewal's laboratory are cited for historic discoveries over the past 50 years by *Nature*. Prof. Grewal is recipient of the prestigious Newcomb-Cleveland Prize, NIH Merit Award, and the NIH Directors' award. He is a member of the US National Academy of Sciences and the American Academy of Arts and Sciences.



ד"ר שוב גרוואל

ראש מעבדה לביוכימיה וביוכימיה מולקולרית
המכון הלאומי לחקר הסרטן - NIH, בת'סדה, מרילנד, ארה"ב

Dr. Shiv Grewal

Distinguished Investigator

Chief, Laboratory of Biochemistry and Molecular Biology
National Cancer Institute - NIH, Bethesda MD, USA

Lecture | הרצאה

"TRANSGENERATIONAL EPIGENETIC INHERITANCE: MECHANISMS FOR THE PROPAGATION OF CHROMATIN STATES"

The Lecture will be held on Monday,
March 4 2019, at 12:15,
Hall 3, Sherman Building,
Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום שני,
4 במרץ 2019, בשעה 12:15,
אולם 3, בניין שרמן,
אוניברסיטת תל-אביב, רמת-אביב

Lecture | הרצאה

"EPIGENETIC GENOME CONTROL BY RNA-BASED MECHANISMS: RETHINKING THE CENTRAL DOGMA"

The Lecture will be held on Tuesday,
March 5 2019, at 12:15,
Hall 2, Sherman Building,
Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום שלישי,
5 במרץ 2019, בשעה 12:15,
אולם 2, בניין שרמן,
אוניברסיטת תל-אביב, רמת-אביב

כיבוד קל יוגש לפני ההרצאות | Light refreshments will be served before the lectures



Prof. Shiv Grewal and Prof. Martin Kupiec



Prof. Shiv Grewal at his lecture

Tel Aviv, 25/3/19

Ms. Ronit Nevo
The Mortimer & Raymond Sackler Institute of Advanced Studies
Tel Aviv University

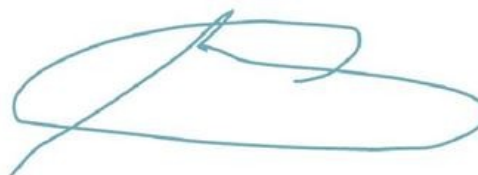
Dear Ronit,

Prof. Shiv Grewal visited Tel Aviv University as a Sackler Lecturer and delivered two very impressive lectures, on the subject of epigenetics. The first was a general lecture about the basic processes operating in epigenetic maintenance. The second included his most recent results. Attendance was high, and the talks were very interesting. Scientists from several Faculties in the campus attended, and many students. We got very positive feedback, in particular from undergraduate and graduate students.

In addition, Prof. Grewal met with a number of scientists from the faculties of Life Science and Medicine.

In summary, this has been a most successful visit, and I take this opportunity to thank the donors, the IAS hospitality (and your impeccable work!). Prof. Grewal had a most positive experience of TAU and Israel, and we enjoyed excellent science.

Sincerely,



Prof. Martin Kupiec
President, Genetics Society of Israel,
Pasha Gol Chair for Applied Microbiology,
School of Molecular Cell Biology and Biotechnology,
Tel Aviv University,
Ramat Aviv 69978,
Israel.
E-Mail: martin@post.tau.ac.il
Phone: 972-3-640-9031
Fax: 972-3-640-9407.

PROFESSOR WOLFGANG SCHLEICH

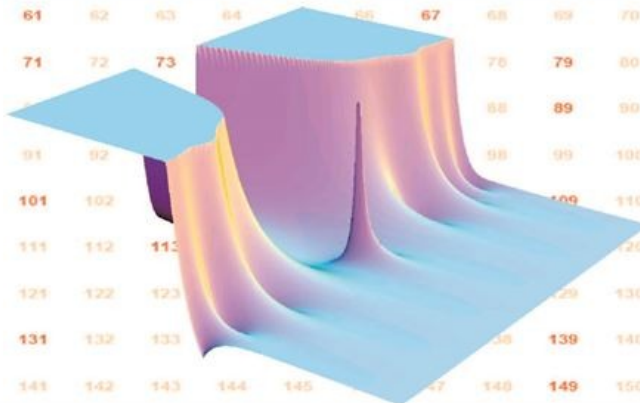


Prof. Wolfgang P. Schleich, Sackler Lecturer 2018/2019, was born in Mühldorf, Germany, in 1957. He became professor of theoretical physics and head of the Institute of Quantum Physics at Ulm University in 1991 and is engaged in research on quantum optics ranging from the foundations of quantum physics via tests of general relativity with light and cold atoms to number theory.

The Ludwig Maximilians-Universität (LMU) in Munich was central to the education of Prof. Schleich. Here he received his Diploma, PhD and Habilitation in 1981, 1984, and 1989, respectively. During this time he worked with Marlan O. Scully at the University of New Mexico, Albuquerque, and with Herbert Walther at the Max-Planck Institute for Quantum Optics (MPQ), Garching. From 1984 to 1986 he was a post-doctoral fellow with John Archibald Wheeler at the University of Texas at Austin and from 1989 to 1990 he was Privatdozent at LMU and MPQ.

For his scientific achievements Prof. Schleich has been elected to several national and international academies and has received numerous prizes and honors such as the Gottfried Wilhelm Leibniz Prize, the Max Planck Research Award, and the Willis E. Lamb Award for Laser Science and Quantum Optics. He is also a Faculty Fellow at the Hagler Institute for Advanced Study at Texas A&M University.

Prof. Schleich is the author of more than 360 publications. His textbook, *Quantum Optics in Phase Space*, has been translated into Russian and a Chinese edition was published in 2010.



פרופסור וולפגנג שליך

הקתדרה לפיזיקה תיאורטית

המכון לפיזיקה קוונטית, אוניברסיטת אולם, גרמניה

Professor Wolfgang P. Schleich

Chair of Theoretical Physics

Institut für Quantenphysik, Universität Ulm, Germany

סמינר מחלקתי אלקטרוניקה פיזיקלית | Department of Physical Electronics Seminar

"THE BIRTH OF THE SCHRÖDINGER EQUATION"

The lecture will take place on Thursday,
7 March 2019, at 15:00,
Room 011, Classroom Building,
Faculty of Engineering, Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום חמישי,
7 במרץ 2019, בשעה 15:00,
חדר 011, בניין כיתות חשמל,
אוניברסיטת תל-אביב, רמת-אביב

קולוקוויום בפיזיקה | Physics Colloquium

"COLD ATOMS IN SPACE"

The Colloquium will take place on Sunday,
10 March 2019, at 14:00, Melamed Hall (6),
Shenkar Physics Building,
Tel-Aviv University, Ramat-Aviv

הקולוקוויום יתקיים ביום ראשון,
10 במרץ 2019, בשעה 14:00,
אולם מלמד (6), בניין שנקר לפיזיקה,
אוניברסיטת תל-אביב, רמת-אביב

סמינר - חקר אינטראקציית אור וחומר | LMI Seminar

"FACTORIZATION OF NUMBERS, SCHRÖDINGER CATS AND THE RIEMANN HYPOTHESIS"

The seminar will take place on Wednesday,
13 March 2019, at 12:30, Room 206,
Wolfson Mechanical Engineering Building
Tel-Aviv University, Ramat-Aviv

הסמינר יתקיים ביום רביעי,
13 במרץ 2019, בשעה 12:30, חדר 206
בניין וולפסון להנדסה מכאנית
אוניברסיטת תל-אביב, רמת-אביב

כיבוד קל יוגש לפני ההרצאות | Light refreshments will be served before the lectures

Professor Wolfgang P. Schleich

Institut für Quantenphysik and Center for Integrated Quantum Science and Technology (IQST), Universität Ulm, D-89069 Ulm, Germany; Institute for Quantum Science and Engineering (IQSE), Texas A&M AgriLife Research, Hagler Institute for Advanced Study, Department of Physics and Astronomy, Texas A&M University, College Station, TX 77843, USA

IAS- Sackler Lecturer 2018/2019

Lecture

The Birth of the Schrödinger Equation

Thursday, 7 March 2019 at 15:00,

Room 011, Classroom Building, Faculty of Engineering

Tel Aviv University

Abstract

When Erwin Schrödinger was challenged by Peter Debye in a colloquium in Zürich in 1925 to propose a wave equation for matter he understandably faced a tremendous challenge. Therefore, it is not surprising that he first proposed several equations before he settled for the one that we call today the time-dependent Schrödinger equation. Unfortunately, he did not provide much motivation for his choice.

In the present talk we provide a brief history of the birth of the Schrödinger equation and review our work on this topic which centers around three characteristic features of quantum mechanics: (i) it displays a symmetric coupling [1] between the amplitude and the phase of the quantum wave, (ii) it allows for more freedom in phase [2] than the one given by the classical action, and (iii) it allows for gauge invariance [3].

[1] W.P. Schleich, D.M. Greenberger, D.H. Kobe, and M.O. Scully, *The Schrödinger equation revisited*, Proc. Nat. Acad. Sci. **110**, 5374 (2013)

[2] W.P. Schleich, D.M. Greenberger, D.H. Kobe, and M.O. Scully, *A wave equation interpolating between classical and quantum mechanics*, Phys. Scr. **90**, 108009 (2015)

[3] W.P. Schleich, D.M. Greenberger, D.H. Kobe, and M.O. Scully, *The birth of the Schrödinger equation*, Physics Reports, to be published

Professor Wolfgang P. Schleich

Institut für Quantenphysik and Center for Integrated Quantum Science and Technology (IQST), Universität Ulm, D-89069 Ulm, Germany; Institute for Quantum Science and Engineering (IQSE), Texas A&M AgriLife Research, Hagler Institute for Advanced Study, Department of Physics and Astronomy, Texas A&M University, College Station, TX 77843, USA

IAS- Sackler Lecturer 2018/2019

Colloquium

Cold Atoms in Space

Sunday, 10 March 2019 at 14:00,

Melamed Hall (6), Shenkar Physics Building, Tel Aviv University

Abstract

The gedanken experiment of a freely falling elevator was crucial for the development of the theory of general relativity. In such an environment, there are locally no gravitational forces, an idea that gave birth to the equivalence principle. Whereas general relativity rules the macroscopic world, quantum mechanics dominates the microscopic scales and reveals the wave nature of matter. Bose-Einstein condensates exist on the border between quantum and classical physics; they are governed by the laws of quantum mechanics but can take macroscopic dimensions.

We take advantage of the absence of gravity in a freely falling elevator to perform experiments [1, 2] with a Bose-Einstein condensate in microgravity. These experiments take place in the 146-m-high drop tower of the Center of Applied Space Technology and Gravity (ZARM) in Bremen and most recently using the MAIUS rocket [3]. We summarize our activities on this interface between quantum and gravity and present an outlook on future experimental possibilities provided by the International Space Station.

[1] T. van Zoest et al., *Bose-Einstein condensation in microgravity*, Science **328**, 1540 (2010)

[2] H. Müntinga et al., *Interferometry with Bose-Einstein condensates in microgravity*, Phys. Rev. Lett. **110**, 093602 (2013)

[3] D. Becker et al., *Space-borne Bose-Einstein condensation for precision interferometry*, Nature **562**, 391-395 (2018)

Professor Wolfgang P. Schleich

Institut für Quantenphysik and Center for Integrated Quantum Science and Technology (IQST), Universität Ulm, D-89069 Ulm, Germany; Institute for Quantum Science and Engineering (IQSE), Texas A&M AgriLife Research, Hagler Institute for Advanced Study, Department of Physics and Astronomy, Texas A&M University, College Station, TX 77843, USA

IAS- Sackler Lecturer 2018/2019

LMI Seminar

Factorization of Numbers, Schrödinger Cats and the Riemann Hypothesis

Wednesday, 13 March 2019 at 12:30,

Room 206, Wolfson Mechanical Engineering Building, Tel Aviv University

Abstract

In this talk we connect the three different topics of factorization of numbers, Schrödinger cats and the Riemann hypothesis. The bridge between these areas is the concept of a Gauss sum.

Gauss sums manifest themselves in various phenomena such as the Talbot effect, wave packet dynamics or quantum carpets. Moreover, Gauss sums can be used to efficiently factor numbers. The talk summarizes these activities [1] and discusses a new approach [2] based on a potential with a logarithmic energy spectrum.

Moreover, we propose an elementary quantum system which provides us with the Riemann zeta function. We show [3] that its zeroes are a consequence of the interference of two quantum systems with opposite phases. However, the preparation of such a superposition state (Schrödinger cat) is impossible unless one takes advantage of entangled quantum systems. In this sense analytic continuation familiar from complex analysis finds entanglement as its analogue in quantum mechanics.

We conclude by introducing a geometrical approach [4] towards the Riemann hypothesis based on the lines of constant phase.

[1] S. Wölk, W. Merkel, W.P. Schleich, I.Sh. Averbukh, B. Girard, and G.Paulus, Factorization of numbers with Gauss sums: I. Mathematical background, New J. Phys. 13, 103007 (2011)

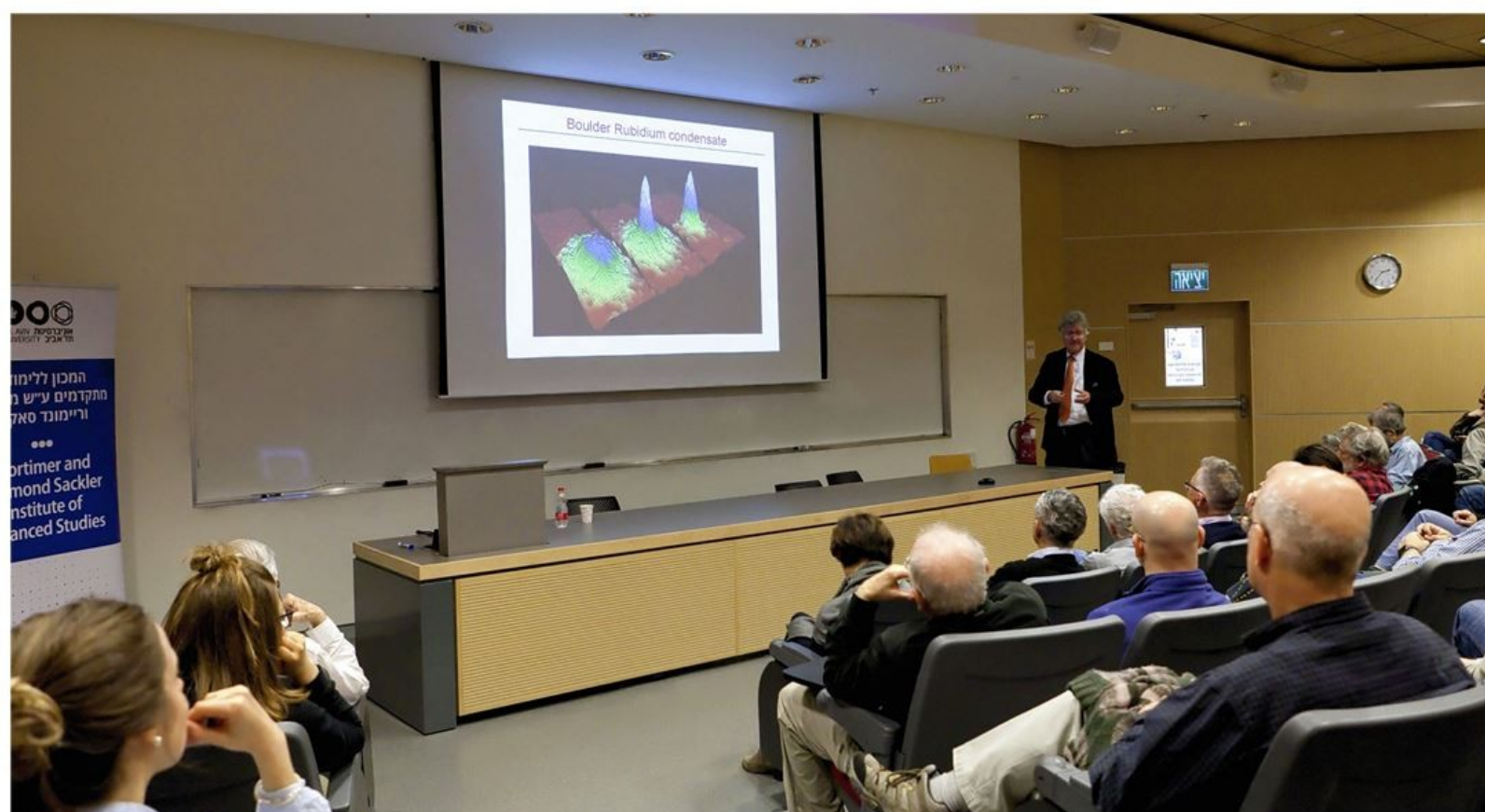
[2] F. Gleisberg, F. Di Pumpo, G. Wolff, and W.P. Schleich, Prime factorization of arbitrary integers with a logarithmic energy spectrum, J. Phys. B: At. Mol. Opt. Phys. 51, 035009 (2018)

[3] C. Feiler and W.P. Schleich, Entanglement and analytical continuation: an intimate relation told by the Riemann zeta function, New J. Phys. 15, 063009 (2013)

[4] W.P. Schleich, I. Bezdekova, M.B. Kim, P.C. Abbott, H. Maier, H.L. Montgomery, and J.W. Neuberger, Equivalent formulations of the Riemann hypothesis based on lines of constant phase, Phys. Scr. 93, 065201 (2018)



Prof. Marek Karliner- IAS director, Prof. Wolfgang Schleich and Prof. Ady Arie



Prof. Wolfgang Schleich at his lecture

March 18, 2019

Prof. Wolfgang Schleich – Summary of visit

Prof. Wolfgang P. Schleich from Ulm University in Germany visited Tel Aviv University for two weeks, from 4/3/19 till 15/3/19, in his role as a Sackler Lecturer of the Mortimer and Raymond Sackler Institute of Advanced Studies. During his visit, Prof. Schleich gave a series of three Sackler lectures:

1. The birth of the Schrödinger equation.
2. Factorization of numbers, Schrodinger cats and the Riemann hypothesis.
3. Cold atoms in Space.

The talks raised a lot of interest in the Tel Aviv University community. Many people came to hear them, and each talk was followed by active discussion with the audience.

Moreover, during his visit here, Prof. Schleich met with several faculty members and students, including Profs. Avi Gover and Shlomo Ruschin from the School of Electrical Engineering, Prof. Lev Veidman from the School of Physics and Astronomy and Prof. Eyal Hefetz from the department of Geophysics. We discussed several joint and future projects, related to the evolution of quantum wave-functions in linear potential and to the interaction of single electrons with gratings and light.

On behalf of Prof. Schleich and myself, we would like to express our warmest gratitude and appreciation to the donors and to the Mortimer and Raymond Sackler Institute of Advanced Studies for their kind hospitality.

Yours Sincerely,



Prof. Ady Arie,
Marko and Lucie Chaoul Chair in Nano-Photonics

PROFESSOR DUNCAN HALDANE



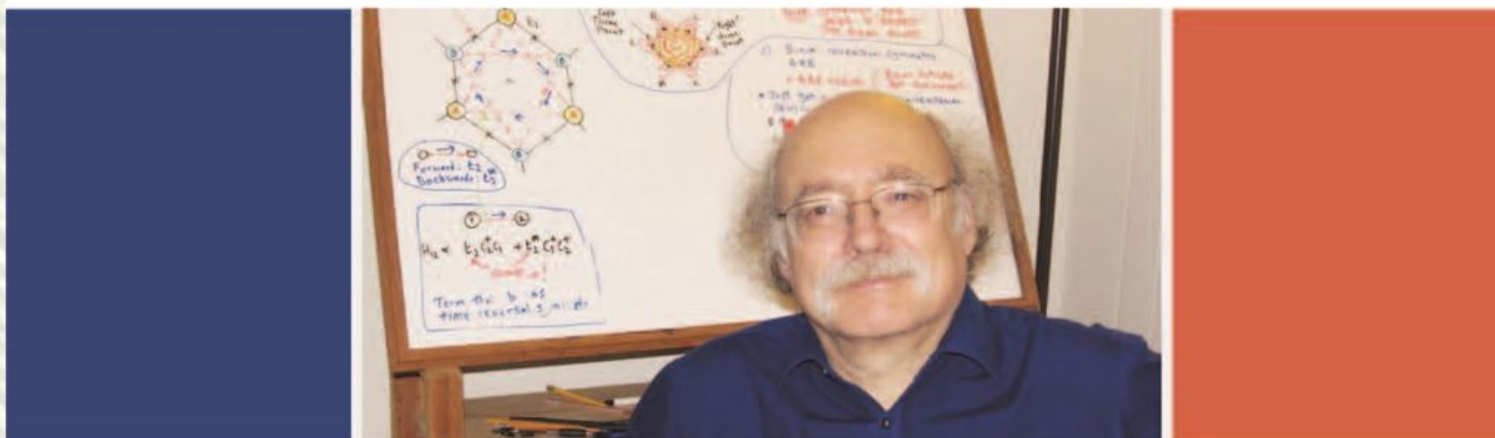
Prof. F. Duncan M. Haldane, Sackler Lecturer 2018/2019, who shared the 2016 Nobel Prize for Physics with David Thouless and Michael Kosterlitz, is the Sherman Fairchild University Professor of Physics at Princeton University. He is also a foreign associate of the U.S. National Academy of Sciences, a Fellow of the Royal Society of London, the American Academy of Arts and Sciences, the American Association for the Advancement of Science, the American Physical Society and the Institute of Physics (UK).

Prof. Haldane received his Ph.D. in theoretical condensed matter physics from Cambridge University, under the direction and mentorship of Philip W. Anderson (Nobel Laureate in Physics 1977). Previously to his appointment at Princeton University he worked at research labs including the Institut Laue-Langevin (Grenoble, France), the University of Southern California, the Bell Laboratories and the University of California, San Diego.

Prof. Haldane was awarded, a share of the Nobel Prize for his theoretical work on “topological states of matter”, including the pioneering work on (unexpected and initially controversial) “topological quantum states” of one-dimensional systems of magnetic atoms and on his theoretical prediction from 1988 of (ferromagnetic) topological insulators exhibiting the “quantum anomalous Hall effect”. On his work on “topological quantum states” of one-dimensional systems of magnetic atoms, he had received the Oliver Buckley Prize of the American Physical Society in 1993, and on his theoretical prediction of (ferromagnetic) topological insulators exhibiting the “quantum anomalous Hall effect”, which was later observed experimentally in 2013, he had received the 2012 Dirac medal of the International Center for Theoretical Physics (Trieste) with Charles Kane and Shou-Cheng Zhang.

Prof. Haldane’s work helped to open up new directions and ways of thinking about quantum effects in condensed matter. In recent years, “topological quantum matter” has grown into an active experimental field, who many believe may provide platforms for “quantum computing. Along with this, he had also initiated the field of “topological photonics”. He currently works on “quantum geometry” in the “fractional quantum Hall effect”.

Prof. Haldane was born in London in 1951, of mixed Scottish and Slovenian origins. Despite having three forenames, he is unrelated to the famous biologist J. B. S. Haldane.



פרופסור דנקן הלדיין

חתן פרס נובל לפיזיקה

המחלקה לפיזיקה, אוניברסיטת פרינסטון, פרינסטון, ניו ג'רסי, ארה"ב

Professor Duncan Haldane

Nobel Prize Laureate in Physics

Department of Physics, Princeton University, Princeton, NJ, USA

Lecture | הרצאה

TOPOLOGICAL QUANTUM MATTER, ENTANGLEMENT, AND THE "SECOND QUANTUM REVOLUTION"

The Lecture will be held on Sunday,
31 March 2019, at 14:00,
Melamed Hall (6), Shenkar Physics building,
Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום ראשון,
31 במרץ 2019, בשעה 14:00,
אולם מלמד (6), בניין שנקר לפיזיקה,
אוניברסיטת תל-אביב, רמת-אביב

Lecture | הרצאה

PHYSICS OF FLUX ATTACHMENT AND COMPOSITE PARTICLES

The Lecture will be held on Monday,
1 April 2019, at 14:30,
Auditorium, Steinhardt Museum of Natural History
Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום שני,
1 באפריל 2019, בשעה 14:30,
באודיטוריום המוזיאון לטבע ע"ש שטיינהרדט,
אוניברסיטת תל-אביב, רמת-אביב

כיבוד קל יוגש לפני ההרצאות | Light refreshments will be served before the lectures



Prof. Yair Shokef, Dr. Yoav Lahini, Prof. Marek Karliner, Prof. Duncan Haldane and Dr. Roni Ilan



Prof. Duncan Haldane, Nobel Prize Laureate in Physics, at his lecture

Prof. Yair Shokef
School of Mechanical Engineering
Tel Aviv University
Tel Aviv 69978, Israel



פרופ' יאיר שוקף
בית הספר להנדסה מכנית
אוניברסיטת תל אביב
תל אביב 69978

+972-3-640-8393

shokef@tau.ac.il

<http://shokef.tau.ac.il>

June 23, 2019

Professor Marek Karliner
Head of the Mortimer and Raymond Sackler Institute of Advanced Studies
Tel Aviv University

Prof. Duncan Haldane – Visit Summary

Dear Prof. Karliner,

Prof. Duncan Haldane of Princeton University visited Tel Aviv University from March 30 until April 4, 2019. During this visit, Prof. Haldane gave two lectures. The first lecture entitled “Topological Quantum Matter, Entanglement, and the Second Quantum Revolution” was given in the Colloquium of the School of Physics and Astronomy at TAU. It was attended by a very large audience, and conveyed the perspective that Prof. Haldane has on topological phases of quantum matter, both to junior students and to senior faculty members with expertise close to that of Prof. Haldane. Later during his visit, Prof. Haldane gave another talk entitled “Physics of Flux Attachment and Composite Particles”. The second talk was given as part of an international scientific workshop entitled “Condensed Matter Analogies in Mechanics, Optics and Cold Atoms” that was held on campus during Prof. Haldane’s visit. His presence at the workshop contributed highly to the level of the scientific presentations and discussions during the workshop. While here, Prof. Haldane participated in extended scientific discussions with many people at TAU. His visit certainly contributed to elevating the academic level of the university. I would like to thank you again for accepting Prof. Haldane as a Sackler Lecturer.

Sincerely,

Yair Shokef

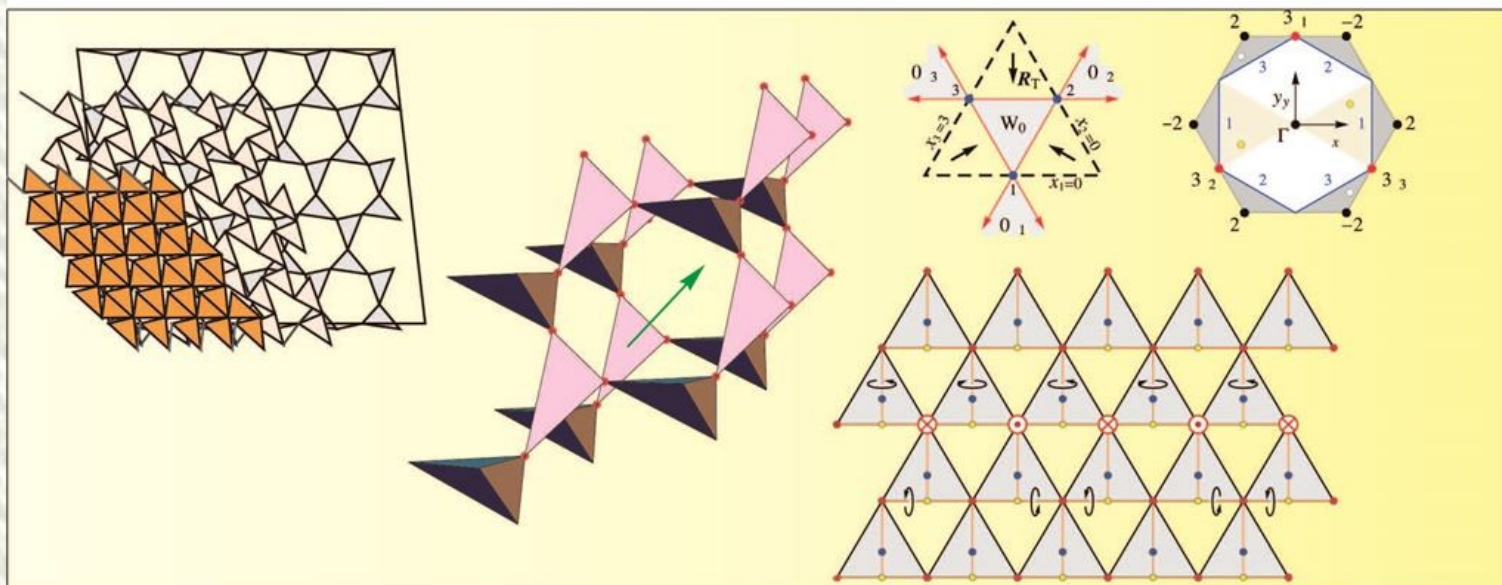
PROFESSOR TOM LUBENSKY



Prof. Tom Lubensky, Sackler Lecture 2018/2019 is a theoretical-condensed-matter physicist at the department of physics and astronomy, University of Pennsylvania. He received his undergraduate education from Caltech (class of 1964) and his Ph.D. from Harvard under the supervision of Paul Martin. He took a one-year NSF postdoctoral Fellowship to France where he had his first exposure to liquid crystals in the research group of Pierre-Giles de Gennes. He next spent one year as a postdoc with Leo Kadanoff at Brown University. In 1971, he moved to the University of Pennsylvania as Assistant Professor in the Department of Physics, where he has been ever since. He served for eight years as Department Chair. He retired as the Christopher H. Browne Distinguished Emeritus Professor in 2017.

Prof. Lubensky's research activities span several subjects and fields. He has made contributions to liquid crystals; phase transitions and critical phenomena; percolation; branched polymers and gels; quasicrystals; and soft-matter in general, including colloids, liquid crystal emulsions, and micro-rheology. His current work is in the new field of topological mechanics. He is co-author with Paul Chaikin of the graduate text book "Principles of Condensed Matter Physics".

Prof. Lubensky is a member of the National Academy of Sciences and the American Academy of Arts and Sciences, a Fellow of the American Physical Society and the American Association for the Advancement of Science, Honored Member of the International Liquid Crystal Society, and a recipient of the American Physical Society's Oliver E Buckley Condensed Matter Prize.



פרופסור תום לובנסקי

המחלקה לפיזיקה ואסטרונומיה

אוניברסיטת פנסילבניה, פילדלפיה, פנסילבניה, ארה"ב

Professor Tom C. Lubensky

Department of Physics and Astronomy,
University of Pennsylvania, Philadelphia, PA, USA

Lecture | הרצאה

ELASTICITY AND WAVES IN MAXWELL AND NEAR MAXWELL LATTICES

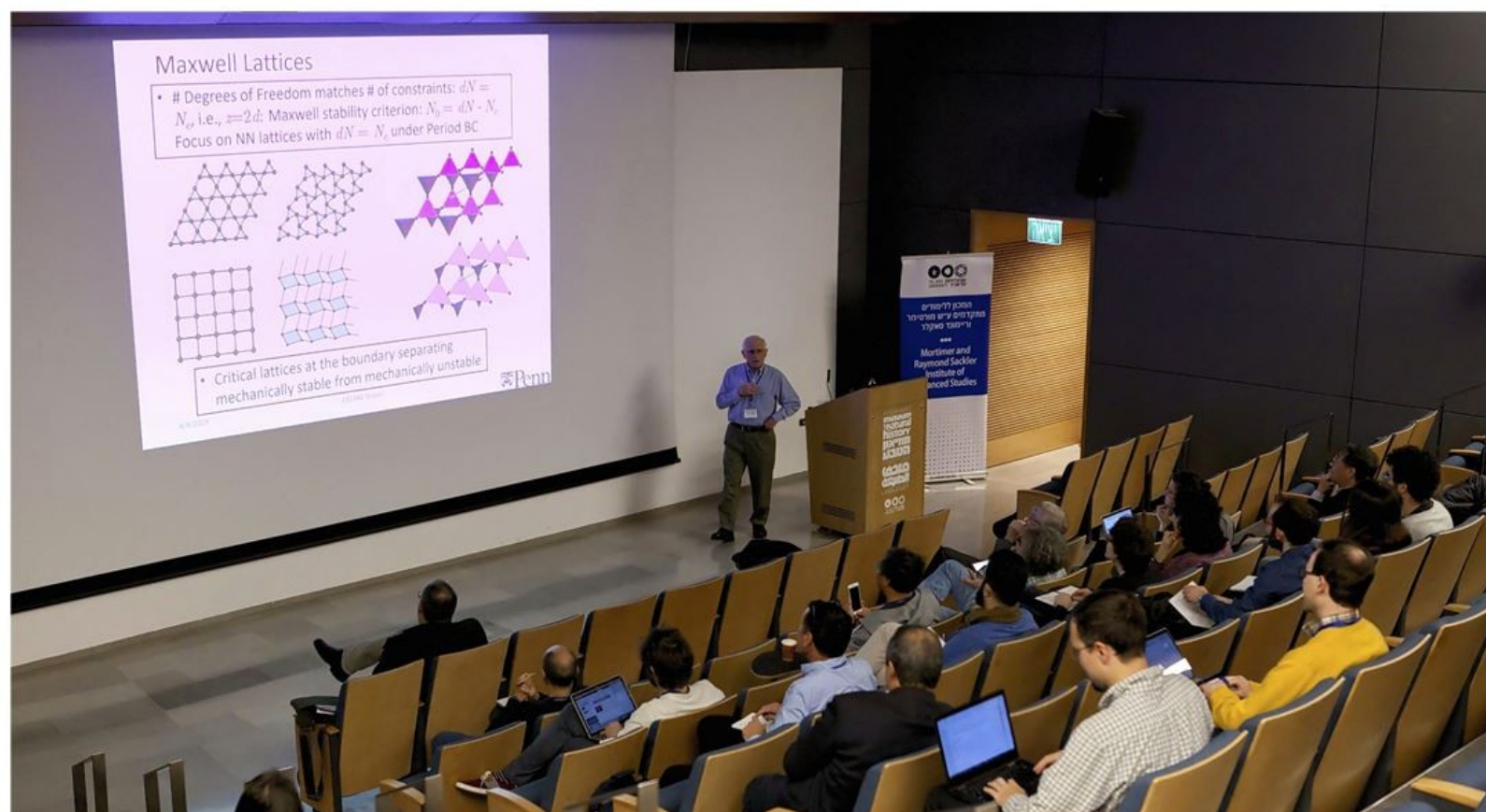
The Lecture will be held on Thursday,
4 April, 2019, at 09:00,
Auditorium, Steinhardt Museum of Natural History
Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום חמישי,
4 באפריל 2019, בשעה 09:00,
באודיטוריום המוזיאון לטבע ע"ש שטיינהרדט,
אוניברסיטת תל-אביב, רמת-אביב

כיבוד קל יוגש לפני ההרצאה | Light refreshments will be served before the lecture



Dr. Roni Ilan, Dr. Yoav Lahini, Prof. Tom Lubensky, Prof. Yair Shokef and Prof. Ron Lifshitz



Prof. Tom Lubensky at his lecture

Prof. Yair Shokef
School of Mechanical Engineering
Tel Aviv University
Tel Aviv 69978, Israel



פרופ' יאיר שוקף
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shokef@tau.ac.il

<http://shokef.tau.ac.il>

June 23, 2019

Professor Marek Karliner
Head of the Mortimer and Raymond Sackler Institute of Advanced Studies
Tel Aviv University

Prof. Tom C. Lubensky – Visit Summary

Dear Prof. Karliner,

Prof. Tom Lubensky of the University of Pennsylvania visited Tel Aviv University from March 31 until April 5, 2019. During this visit, Prof. Lubensky gave a lecture on “Elasticity and Waves in Maxwell and near Maxwell Lattices”. In this talk he reviewed his work and the work of his collaborators on using simple mechanical systems of rods and hinges in order to study topological phenomena, which have previously been considered mainly in electronic or quantum condensed-matter systems. While at TAU he participated in an international scientific workshop entitled “Condensed Matter Analogies in Mechanics, Optics and Cold Atoms”. His presence at the workshop contributed highly to the level of the scientific presentations and discussions during the workshop. While here, Prof. Lubensky participated in extended scientific discussions with many people at TAU. His visit certainly contributed to elevating the academic level of the university. I would like to thank you again for accepting Prof. Lubensky as a Sackler Lecturer.

Sincerely,

Yair Shokef

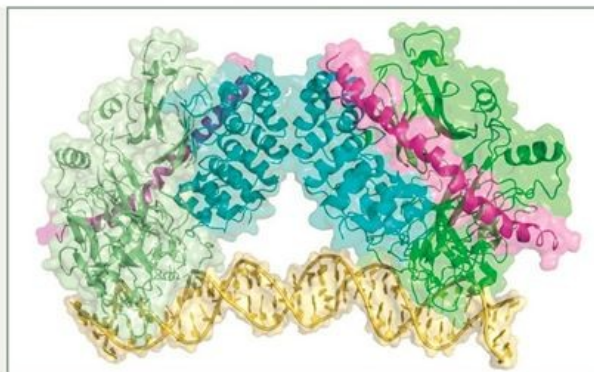
PROFESSOR STEPHEN BLACKLOW



Prof. Stephen C. Blacklow, Sackler Scholar 2018/2019, is currently the Gustavus Adolphus Pfeiffer Professor and Chair of the Department of Biological Chemistry and Molecular Pharmacology at Harvard Medical School, and a member of the Department of Cancer Biology at the Dana Farber Cancer Institute. Prof. Blacklow received his M.D. and Ph.D. degrees from Harvard University in 1991, completed his residency in Clinical Pathology at Brigham and Women's Hospital, and carried out postdoctoral research at the Whitehead Institute with Prof. Peter S. Kim. His initial faculty appointment was at Stanford University in 1996, where he remained until rejoining the HMS faculty at Brigham and Women's Hospital in 1998.

Research led by Prof. Blacklow's team has shown how cell surface receptors can convey a developmental signal directly from one contacting cell surface to the next and then from the membrane to the nucleus. He has elucidated key molecular events in Notch signal transduction, a conserved cell-cell communication system that influences cell fate decisions in all metazoan organisms, and that is frequently hijacked as an oncogenic driver in human leukemia. His laboratory uncovered how activating mutations of the Notch1 receptor frequently found in human T cell acute lymphocytic leukemia/lymphoma overcome normal restraints on signaling resulting in autonomous gain-of-function, and spurred the development of inhibitory antibodies that suppress normal and oncogenic Notch signaling as candidates for further clinical development.

Prof. Blacklow was named a Pfizer Scholar in 1997, a Pew Scholar in 1999, and an Established Investigator of the American Heart Association in 2002. He has given research presentations at numerous national and international meetings, including plenary talks at Keystone Symposia and the inaugural Murray Goodman Symposium of the American Chemical Society. Prof. Blacklow directed the MD-PhD Program in Basic and Translational Sciences at Harvard Medical School from 2007-2012, and has served on Advisory Committees for pre-clinical departments, graduate programs, and MD-PhD programs at several major research universities and institutions, including Stanford, the University of Pennsylvania, and the Memorial Sloan Kettering Cancer Center.



פרופסור סטפן בלקלאו

יו"ר, המחלקה לכימיה ביולוגית ופרמקולוגיה מולקולרית,
ביה"ס לרפואה הרווארד, בוסטון, ארה"ב

Professor Stephen Blacklow

Chair, Department of Biological Chemistry and Molecular Pharmacology,
Harvard Medical School, Boston, USA

סמינר ביוסופט | Biosoft Seminar

"PROBING THE ROLE OF MECHANOSENSATION IN SIGNAL TRANSDUCTION"

The seminar will take place on Wednesday,
10 April 2019, at 11:10,
Room 118, Kaplun Building,
Tel-Aviv University, Ramat-Aviv.

הסמינר יתקיים ביום רביעי,
10 באפריל 2019, בשעה 11:10,
חדר 118, בניין קפלון
אוניברסיטת תל-אביב, רמת-אביב.

סמינר ביה"ס לנירוביולוגיה, ביוכימיה וביופיזיקה | NBB School Seminar

"FROM MEMBRANE TO NUCLEUS, THE MOLECULAR LOGIC OF NOTCH SIGNAL TRANSDUCTION"

The seminar will take place on Tuesday,
30 April 2019, at 11:15,
Hall (3), Sherman Building,
Tel-Aviv University, Ramat-Aviv.

הסמינר יתקיים ביום שלישי,
30 באפריל 2019, בשעה 11:15,
אולם 03, בניין שרמן,
אוניברסיטת תל-אביב, רמת-אביב.

סמינר מרכז ביולוגיה התפתחותית | Developmental Biology hub Seminar

"MOLECULAR SWITCHES IN DEVELOPMENTAL SIGNALING"

The seminar will take place on Thursday,
6 June 2019, at 10:00, Room 200,
Sackler Faculty of Medicine Building,
Tel-Aviv University, Ramat-Aviv.

הסמינר יתקיים ביום חמישי,
6 ביוני 2019, בשעה 10:00, חדר 200
בניין הפקולטה לרפואה ע"ש סאקלר
אוניברסיטת תל-אביב, רמת-אביב.

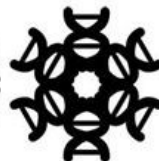
כיבוד קל יוגש לפני ההרצאות | Light refreshments will be served before the lectures



Prof. Stephen Blacklow and Prof. David Sprinzak



Prof. Stephen Blacklow at his lecture



July 18, 2019

Dear Ronit,

It is my pleasure to submit this report on the visit of Prof. Steve Blacklow, the Chair of the Department of Biological Chemistry and Molecular Pharmacology at Harvard Medical School, as Sackler Fellow in The Mortimer and Raymond Sackler Institute of Advanced Studies. Prof. Blacklow visited Tel Aviv University between April 1st 2019 and June 27th 2019. During this period Prof. Blacklow joined my group at the department of Biochemistry in the Faculty of Life Sciences.

During his stay, Prof. Blacklow gave three different seminars in three different forums: The first was in the biosoft seminar series, the second was a school seminar at the school of Neurobiology, Biochemistry and Biophysics, and the third was at the Developmental Biology Hub at Tel-Aviv University. All seminars were highly attended.

Prof. Blacklow also had personal meetings with many PIs at the faculties of Life Sciences, Medicine, and Exact Science. In addition, he was actively involved in research in my lab and worked with students on our joint research project (we are co-PIs on a joint BSF grant).

Prof. Blacklow was extremely happy with his visit at Tel-Aviv University. He expressed his satisfaction and enjoyment with the interactions he had with the faculty and students at Tel-Aviv University.

I would like to personally thank the Mortimer and Raymond Sackler Institute of Advanced Studies and particularly the donors Dr. Nirit Weiss and Dr. Michael David Shaoul for supporting Steve Blacklow as a Sackler fellow. This has created a really outstanding opportunity to bring such a renowned scientist to Tel Aviv University, which has culminated in a wonderful and fruitful visit, both scientifically and personally.

Sincerely,
For the authors,

D. Sprinzak

Prof. David Sprinzak, Ph.D.
Vice Dean for Teaching
George S. Wise Faculty of Life Sciences
Tel Aviv University
Tel Aviv 6997801, Israel

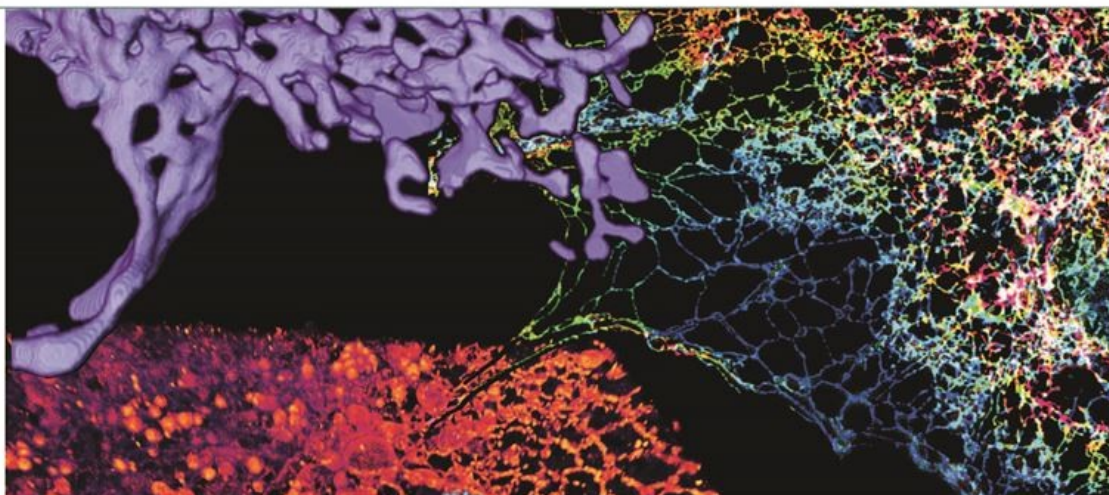
PROFESSOR JENNIFER LIPPINCOTTE SCHWARTZ



Prof. Jennifer Lippincott-Schwartz, Sackler Lecturer 2018/2019, is a Group Leader at HHMI – Janelia Research Campus. She attended Swarthmore College and Stanford University before receiving her PhD in Biology from Johns Hopkins University. After doing post-doctoral work under Richard Klausner at the National Institutes of Health in Bethesda, Maryland, she established her own lab there, where she became a Distinguished NIH Investigator and Chief of the Section on Organelle Biology in the Cell Biology and Metabolism Branch.

Prof. Lippincott-Schwartz is a member of the National Academy of Sciences, the National Academy of Medicine, and the European Molecular Biology Organization. She is a fellow of the Biophysical Society, the Royal Microscopical Society and the American Society of Cell Biology. Her honors and awards include the Pearse Prize of the Royal Microscopy Society, the Newcomb Cleveland Prize of the American Association for the Advancement of Science, the Van Deenen Medal, and the Feodor Lynen Medal. She is co-author of the textbook “Cell Biology” and is past President of the American Society of Cell Biology.

Prof. Lippincott-Schwartz's research uses live cell imaging approaches to analyze the spatio-temporal behavior and dynamic interactions of molecules and organelles in cells. Her group has pioneered the use of green fluorescent protein (GFP) technology for quantitative analysis and modeling of intracellular protein traffic and organelle biogenesis in live cells and embryos, providing novel insights into cell compartmentalization, protein trafficking and organelle inheritance. She created the photoactivatable GFP and co-developed the super-resolution imaging technique of photoactivated localization microscopy (PALM). She introduced various PALM implementations to track single molecules, measure protein cluster patterns, perform multicolor labeling, count single molecules and measure receptor stoichiometry.



ד"ר ג'ניפר ליפינקוט-שוורץ

חוקרת ראשית בכירה, המכון הרפואי ע"ש הווארד יוז
קמפוס מחקר ג'נליה, אשבורן, וירג'יניה

Dr. Jennifer Lippincott-Schwartz

Senior Group Leader, Howard Hughes Medical Institute
Janelia Research Campus, Ashburn, Virginia, USA

הרצאה | Lecture

"EMERGING IMAGING TECHNOLOGIES TO STUDY CELL ARCHITECTURE, DYNAMICS AND FUNCTION"

The Lecture will be held on Wednesday,
May 29 2019, at 14:00,
Dolphy Lecture Hall, Sackler Faculty of Medicine Building
Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום רביעי,
29 במאי 2019, בשעה 14:00,
אולם דולפי, בניין הפקולטה לרפואה ע"ש סאקלר
אוניברסיטת תל-אביב, רמת-אביב

סמינר מרכז חקר עיצוב ותקשורת ממברנות | Membrane Communication & Remodeling Research Hub seminar

"PATHWAYS OF ORGANELLE-ORGANELLE CROSS-TALK AND THEIR ROLE(S) IN CELL METABOLISM AND HOMEOSTASIS"

The Lecture will be held on Thursday,
May 30 2019, at 14:00,
Lola Lecture Hall, Sackler Faculty of Medicine Building
Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום חמישי,
30 במאי 2019, בשעה 14:00,
אולם לולה, בניין הפקולטה לרפואה ע"ש סאקלר
אוניברסיטת תל-אביב, רמת-אביב

כיבוד קל יוגש לפני ההרצאות | Light refreshments will be served before the lectures



Prof. Koret Hirschberg and Dr. Jennifer Lippincott-Schwartz



Dr. Jennifer Lippincott-Schwartz at her lecture



Koret Hirschberg PhD

Pathology Dept.
Mortimer and Raymond Sackler School of Medicine
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Monday, June 24, 2019

Dr Jennifer Lippincott Schwartz visit summary

Dr Lippincott Schwartz visited for a week during which she gave two lectures as well as an unofficial meeting with the 2nd and 3rd year students of the Biology-Medicine combined BSc program.

Lecture 1 given on Wednesday was titled "Emerging imaging technologies to study cell architecture, dynamics and function" In this presentation she presented a system for simultaneous labeling of 6 organelles allowing quantitative analysis of inter-organelle contact sites. In addition, she presented her recent research on how mRNA complexes hitchhike on lysosome to travel along neuronal axons.

Lecture 2. Originally titled "Pathways of Organelle-Organelle crosstalk and their role(s) in cell metabolism and homeostasis" focused mostly on new findings on the mechanism of how the AIDS virus assemble a domain on the host membrane to facilitate its exocytosis. There she demonstrated for the first time a key role for the viral RNA in stabilizing protein complexes that in turn generate the domains.

The unofficial talk was for 2 hours where she discussed her entire career in a personal view starting from being a teacher in an elementary school in a remote village in Kenya to a leading scientist.

During three days (Tuesday-Thursday) Dr. met (many) principal investigators from the Life Sciences and Medical faculties for a 40 min each

On behalf of Dr. Lippincott Schwartz and myself, we would like to express our gratitude and appreciation to the donors and to the Mortimer and Raymond Sackler Institute of Advanced Studies for allowing this visit to materialize. This visit although intense was exceptionally fruitful for many PIs as well as for students who were introduced to the power of state-of-the-art imaging technologies and to high quality science. Moreover, Dr. Lippincott Schwartz was for the first time introduced to many aspects of the research carried out in Tel Aviv University.

Finally, I would like to express my gratitude to Ronit Nevo and her team who organized each and every aspect of this visit in the most professional way possible.

Sincerely,

Koret Hirschberg PhD

