Raymond and Beverly Sackler Distinguished Lectures Series

Annual Album

2018/2019

TEL AVIV UNIVERSITY

אוניברסיטת תל-אביב

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

October 22, 2019
MK –6005

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

Dear Sackler Family,

It is my pleasure to present you with the annual album of the Raymond and Beverly Sackler Distinguished Lectures Series for the academic year 2018/2019. We were honored to host these following 7 world-renowned scholars, each of them being a leading figure in their field of expertise:

The Emilio Segre Distinguished Lectures in Physics Endowed by Raymond and Beverly Sackler:
Prof. Yifang Wang; Prof. Sydney Galès; Prof. Yuval Grossman; Prof. David Weinberg.

Yuval Ne'eman Distinguished Lectures in Geophysics, Atmosphere and Space Sciences Endowed by Raymond and Beverly Sackler:
Prof. Emeritus Richard Salmon.

Raymond and Beverly Sackler Distinguished Lectures in Pure Mathematics:
Prof. Henri Berestycki.

Saul J. Farber Distinguished Lectures in Medicine Endowed by the Sackler Foundation:
Prof. David G. Hunter.

Please accept our sincere appreciation for your generous support which enables us to maintain the Distinguished Lectures Series that attracts prominent scholars from around the world, encourages the exchange of new ideas and facilitates prospect academic collaborations. Once again, please accept our profound gratitude for your ongoing support and donation.

Yours respectively,
Ronit Nevo
Ms. Ronit Nevo
Administrative Director

cc: Research authorities
Encl.

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http://www.tau.ac.il/institutes/advanced/index.html

THE RAYMOND AND BEVERLY SACKLER DISTINGUISHED LECTURES SERIES

Academic Year 2018/2019

The Emilio Segre Distinguished Lectures in Physics Endowed by Raymond and Beverly Sackler

Professor Yifang Wang Director, The Institute of High Energy Physics, Chinese Academy of Science, Beijing, China.	October 2018
Professor Sydney Galès Director of Research Institute de Physique Nucleaire Orsay, Orsay, France	April 2019
Professor Yuval Grossman, Department of physics Cornell University, Ithaca, New York, USA	May 2019
Professor David Weinberg, Department of Astronomy, McPherson Laboratory, Ohio State University, Columbus, Ohio, USA	May –June 2019

Yuval Ne'eman Distinguished Lectures in Geophysics, Atmosphere and Space Sciences Endowed by Raymond and Beverly Sackler

Professor Emeritus Richard Salmon, The Scripps Institution of Oceanography of the University of California, San Diego	March-April 2019

Raymond and Beverly Sackler Distinguished Lectures in Pure Mathematics

Professor Henri Berestycki, Chair, Mathematical analysis and modelling, L'École des hautes études en sciences sociales, PSL University, Paris, France	June 2019

Saul J. Farber Distinguished Lectures in Medicine Endowed by the Sackler Foundation

Dr. David G. Hunter, Professor and Vice Chair of Ophthalmology, Harvard Medical School, Boston, MA , USA	October 2018

PROFESSOR YIFANG WANG

Prof. Yifang Wang, Guest Lecturer at the Emilio Segre Distinguished Lectures in Physics Endowed by Raymond and Beverly Sackler for the academic year 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, theta-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.

אוניברסיטת תל אביב
TEL AVIV UNIVERSITY

ההרצאות המיוחדות בפיזיקה
ע"ש אמיליו סגרה, נתרמו ע"י
ריימונד ובברלי סאקלר

The Emilio Segre Distinguished
Lectures in Physics Endowed by
Raymond and Beverly Sackler

הרצאה לזכרו של
פרופסור יובל נאמן ז"ל

Professor Yuval Ne'eman
Memorial Lecture

דברי פתיחה: **פרופסור ירון עוז**, רקטור

Introductory Remarks: **Prof. Yaron Oz,** Rector

הענקת מלגת הצטיינות
לזכרו של פרופסור יובל נאמן ז"ל
למר אור גוטליב - תלמיד לתואר שלישי

Presentation of the "Academic Achievement" Scholarship
in memory of Professor Yuval Ne'eman to
Mr. Ore Gottlieb - Ph.D. Student

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

Lecture | הרצאה

THE FUTURE OF HIGH ENERGY PHYSICS - AND CHINA'S ROLE

Abstract

In this talk, I will introduce the main theme of future of high energy physics, its current status and our thinking about its future, including the future high energy accelerators. In particular, the plan in China for the future 100 km circular collider will be discussed, together with other particle physics experiments in space, underground and at very high altitude.

ההרצאה תתקיים ביום ראשון,
28 באוקטובר 2018, בשעה 14:00,
אולם מלמד (6), בניין שנקר לפיזיקה,
אוניברסיטת תל-אביב, רמת-אביב

The lecture will take place on Sunday,
28 October 2018, at 14:00,
Melamed Hall (6), Shenkar Physics building,
Tel-Aviv University, Ramat-Aviv

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

Mortimer and Raymond Sackler Institute of Advanced Studies
https://ias.tau.ac.il/

Prof. Abner Soffer, Prof. Yifang Wang and Prof. Mark Karliner - IAS director

Prof. Yifang Wang at his lecture

School of Physics and Astronomy
The Raymond and Beverly Sackler
Faculty of Exact Sciences
Tel Aviv University

בית הספר לפיזיקה ולאסטרונומיה
הפקולטה למדעים מדויקים
ע"ש ריימונד ובברלי סאקלר
אוניברסיטת תל אביב

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 the Emilio Segre Distinguished Lectures in Physics of the Raymond and Beverly Sackler Foundation guest.

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

Marek Karliner
Professor of Physics

קריית האוניברסיטה, רמת-אביב, תל-אביב 69978 ת.ד. 39040. טלפון: 03-6406373; 03-6408636;
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E-MAIL: marek@post.tau.ac.il

PROFESSOR SYDNEY GALE`S

Prof. Sydney Galès, Guest Lecturer at the Emilio Segre Distinguished Lectures in Physics Endowed by Raymond and Beverly Sackler for the academic year 2018/2019, is the director of research at CNRS (National Centre for Scientific Research in France) and an internationally renowned physicist, expert in the fields of atomic nucleuses and accelerators.

Prof. Galès received his Ph.D. in physics from the University of Orsay, France. Most of his scientific carrier has been carried out in CNRS, where he became deputy director. Significant part of his scientific carrier was as director of research in IPN Orasy (Institute of Nuclear physics) ,which was founded by Nobel prize winners Irene and Joliot Curie.

During 1986-1994 Prof. Gales had formed AGOR a European collaboration to construct the first European superconducting cyclotron accelerator in Orsay, France. In May 1994 the accelerator launched its first beam.

Prof. Galès has been a member and chaired numerous international committees: chairman of GANIL chair of NuPECC; member of the selection panel of the Nobel prize for physics (2005-2009), and member of other auditing & reviewing committees for big infrastructures such as GSI-FAIR (Germany), RIKEN (Japan), KORIA (South Korea), JINR (Russia) and IMP (China). He was also member of OECD, IUPAP, EU FP6 and FP7 committees. He is now chair of iThemba Labs (South Africa) and Chair of G-PAC FAIR-GSI Germany.

Since 2008, Prof. Galès has been the coordinator of NuPNET, the EU-funded ERA-NET project. He has taken part in coordinating ELI's activities. During 2013-2016, he has led as scientific director, ELI's project in Romania for nuclear physics (ELI-NP). Since 2017 he is the scientific advisor of ELI-NP and member of the international scientific advisory board of the project.

Prof. Galès has taken part in setting-up the European Centre for Theoretical Physics (ECT*) in Trento, Italy and he is also one of the founding fathers of "Ecole Joliot-Curie" International School (European School of Physics).

Since the beginning of the millennium, Prof. Galès has contributed to the emergence of subatomic physics, the physics of ephemeral nuclei, (so-called "exotic nuclei"), and has taken initiative in the new science domain of high power lasers (multi-PW).

Prof. Galès is the authors of more than 250 publications in referee international journals, writer of 150 invited papers at international conferences, editors of more than 30 books conferences, and has chaired over 100 international conferences.

Prof. Galès is a recipient of various distinctions including: Medal of CNRS (France '78), Knight of the Queen (The Netherlands,'95), Chevalier de l'Ordre National du Mérite (France,'97), Flerov Prize (Russia,2009), Grand Prix Felix Robin (French Physical Society,2014) and Chevalier dans l'ordre National de la Legion d'honneur (2015).

TEL AVIV UNIVERSITY אוניברסיטת תל אביב

ההרצאות המיוחדות בפיזיקה
ע"ש אמיליו סגרה, נתרמו ע"י
ריימונד ובברלי סאקלר

The Emilio Segre Distinguished
Lectures in Physics Endowed by
Raymond and Beverly Sackler

הרצאה לזכרו של
פרופסור יהודה אייזנברג ז"ל

Professor Judah M. Eisenberg
Memorial Lecture

הענקת מלגת הצטיינות
לזכרו של פרופסור יהודה אייזנברג ז"ל
לגב' אביה רביב משה – תלמידה לתואר שלישי

Presentation of the **Judah Eisenberg Award**
for academic achievement to
Ms. Avia Raviv Moshe – Ph.D. Student

פרופסור סידני גאלס

מנהל במכון המחקר לפיזיקה גרעינית אורסיי
אורסיי, צרפת

Professor Sydney Galès

Director of Research
Institut de Physique Nucleaire Orsay,
Orsay, France

Lecture | הרצאה

STEPPING INTO THE LIGHT WITH HIGH POWER LASERS AND BRILLIANT GAMMA BEAMS

ההרצאה תתקיים ביום ראשון,
28 באפריל 2019, בשעה 14:00,
באולם מלמד (6), בניין שנקר לפיזיקה,
אוניברסיטת תל אביב, רמת אביב

The lecture will take place on Sunday,
28 April 2019, at 14:00,
Melamed Hall (6), Shenkar Physics Building,
Tel Aviv University, Ramat Aviv

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

Prof. Ishay Pomerantz, Prof. Sydney Galès and Prof. Marek Karliner - IAS director

Prof. Sydney Galès at his lecture

Dr. Ishay Pomerantz
Senior Lecturer
Mortimer Zuckerman Faculty Scholar
The School of Physics and Astronomy
Tel-Aviv University

הפקולטה למדעים
מדויקים ע"ש ריימונד
ובברלי סאקלר
אוניברסיטת תל אביב

June 11, 2019

Report on the visit of Prof. Sydney Galès,
The Emilio Segre Distinguished Lecturer in Physics
Endowed by Raymond and Beverly Sackler foundation
for the 2018/2019 academic year

We have had the pleasure of hosting Prof. Sydney Galès from IPN/Orsay, France, at Tel-Aviv University on April 28th 2019.

Prof. Galès has spent the entire day on campus. He toured the Nuclear Photonics Laboratory and the Nuclear Detector Laboratory, and had discussions with the graduate students about their research projects.

Prof. Galès met with the university's Rector, Prof. Yaron Oz for a lunch meeting to discuss the prospects of nuclear physics research at TAU.

In the afternoon, Prof. Galès delivered the annual lecture in the memory of **Prof. Judah Eisenberg**, titled: "**Stepping into the light with high power lasers and brilliant gamma beams**".

We thank the generous support of the Sackler family, enabling the interaction with this distinguished guest.

Sincerely,
Ishay Pomerantz

Email: ipom@post.tau.ac.il Office: +972-3-640-7845
Tel-Aviv Intense Lasers and Ultrafast Science group: http://tailus.tau.ac.il/

PROFESSOR YUVAL GROSSMAN

Prof. Yuval Grossman, Guest Lecturer at the Emilio Segre Distinguished Lectures in Physics of the Raymond and Beverly Sackler Foundation for the academic year 2018/2019, is a professor at the department of physics at Cornell University. He got his Ph.D. from the Weizmann Institute of science. Before moving to Cornell, he has been a research associate at Stanford, a professor at the Technion, Israel, and a visiting professor at Harvard, Boston University and the Weizmann Institute of science.

Prof. Grossman's research on theoretical physics concentrates on issues related to some of the most fundamental open questions in the field, like the mystery of anti-matter, neutrino physics, and dark matter. His main focus is on interpreting experimental data and suggesting new analyses to experiments. His research work at the Cornell Laboratory for Accelerator-based Sciences and Education focused on flavor physics including: lepton flavor symmetries, leptogenesis, CP violation, composite neutrinos, and spin determination.

In recent years, Prof. Grossman has mainly worked on B physics and neutrino physics. In the next few years, he expects to continue to research on topics related to Large Hadron Collider (LHC).

TEL AVIV UNIVERSITY אוניברסיטת תל אביב

ההרצאות המיוחדות בפיזיקה
ע"ש אמיליו סגרה, נתרמו ע"י
ריימונד ובברלי סאקלר

The Emilio Segre Distinguished
Lectures in Physics Endowed by
Raymond and Beverly Sackler

Professor Yossef Dothan Memorial Lecture

הרצאה לזכרו של פרופסור יוסף דותן

Introductory Remarks:
Prof. Marek Karliner

דברי פתיחה:
פרופ' מרק קרלינר

Presentation of the "Academic Achievement" Scholarship by the Dothan Fund in memory of Professor Yossef Dothan to Mr. Nadav Joseph Outmezguine - Ph.D. Student

הענקת מלגת הצטיינות מקרן דותן לזכרו של פרופסור יוסף דותן - למר נדב יוסף אוטמזגין - תלמיד לתואר שלישי

פרופסור יובל גרוסמן

המחלקה לפיזיקה

אוניברסיטת קורנל, איתקה, ניו-יורק, ארה"ב

Professor Yuval Grossman

Department of Physics
Cornell University, Ithaca, New York, USA

Lecture | הרצאה

NEUTRINOS AS THE KEY TO THE UNIVERSE AS WE KNOW IT

Abstract

There are three open questions in physics which seem unrelated: Why is there only matter around us? How neutrinos acquire their tiny masses? Why all particles in Nature have integer electric charges? It turns out that these open questions are related. In the talk I will explain these open questions, the connection between them, and describe the on-going theoretical and experimental efforts in understanding them.

The lecture will take place on Sunday, 19 May 2019, at 14:00, Melamed Hall (6), Shenkar Physics building, Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום ראשון, 19 במאי 2019, בשעה 14:00, אולם מלמד (6), בניין שנקר לפיזיקה, אוניברסיטת תל-אביב, רמת-אביב

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

Prof. Yuval Grossman and Prof. Marek Karliner - IAS director

Prof. Yuval Grossmant at his lecture

School of Physics and Astronomy
The Raymond and Beverly Sackler
Faculty of Exact Sciences
Tel Aviv University

בית הספר לפיזיקה ולאסטרונומיה
הפקולטה למדעים מדויקים
ע"ש ריימונד ובברלי סאקלר
אוניברסיטת תל אביב

June 16, 2019
MK- 5099

Scientific report on the visit of Prof. Yuval Grossman

Prof. Yuval Grossman is currently a researcher in the Department of Physics at Cornell University, USA. He visited Tel Aviv University during May 16 - 20, 2019 as the Emilio Segre Distinguished Lectures in Physics of the Raymond and Beverly Sackler Foundation, guest.

Prof. Grossman's research on theoretical physics concentrates on issues related to some of the most fundamental open questions in the field, like the mystery of anti-matter, neutrino physics, and dark matter.

During his visit, Prof. Grossman delivered the Professor Yossef Dothan Memorial Lecture, on May 19, titled: **"Neutrinos as the Key to the Universe as We Know It"**. The lecture was very well attended and was followed by active discussion with the audience.

Prof. Grossman also held informal meetings with faculty and research members. Those meetings were highly stimulating and appreciated.

I want, once again, to extend my sincere thanks to the Sackler Institute of Advanced Studies for their support and kind hospitality.

Sincerely

Marek Karliner

Marek Karliner
Professor of Physics

קריית האוניברסיטה, רמת-אביב, תל-אביב 69978 ת.ד. 39040. טלפון: 03-6406373; 03-6408636;
RAMAT-AVIV, TEL AVIV 69978, ISRAEL. TEL. +972-3-6406373, 6408636
E-MAIL: marek@post.tau.ac.il

PROFESSOR DAVID WEINBERG

Prof. David Weinberg, Guest Lecturer at the Emilio Segre Distinguished Lectures in Physics Endowed by Raymond and Beverly Sackler for the academic year 2018/2019, is a Distinguished University Professor, Chair of the Department of Astronomy at Ohio State University and member of the Center for Cosmology and AstroParticle Physics, there.

Prof. Weinberg received his Ph.D. in Astrophysics from Princeton University and later held positions as a NATO Postdoctoral Fellow at Cambridge University and as a Miller Fellow at U.C. Berkeley. He joined the Ohio State faculty in 1995.

Prof. Weinberg began his multi-decade involvement with the Sloan Digital Sky Survey (SDSS) in 1992; He had served as the Spokesperson for SDSS-II and the Project Scientist for SDSS-III, and remained a member of the advisory councils for SDSS-IV and V. More recently, he has been an active member of the science formulation teams for NASA's Wide Field Infrared Survey Telescope mission and co-chair of the Bright Galaxy Survey working group for the Dark Energy Spectroscopic Instrument collaboration.

Among Prof. Weinberg's honors and awards are Fellow of the American Physical Society and member of the American Association for the Advancement of Science. He was elected often from 1992 as a member of the Institute for Advanced Studies at Princeton University. In 2015, he was awarded the American Astronomical Society's Lancelot Berkeley Prize for his contributions to the SDSS-III Baryon Oscillation Spectroscopic Survey. In 2013, he was named the Henry L. Cox Professor in Astronomy by the Ohio State University and in 2006 he received the University Distinguished Scholar award there.

TEL AVIV UNIVERSITY אוניברסיטת תל אביב

ההרצאות המיוחדות בפיזיקה
ע"ש אמיליו סגרה, מיסודה
של קרן ריימונד ובברלי סאקלר

The Emilio Segre Distinguished
Lectures in Physics of the Raymond
and Beverly Sackler Foundation

הרצאה באסטרופיזיקה
ע"ש ג'ון בקל - 2018/2019

The John Bahcall
Lecture in Astrophysics – 2018/2019

דברי פתיחה:
פרופ' דן מעוז
ראש ביה"ס לפיזיקה ולאסטרונומיה

Introductory Remarks:
Prof. Dan Maoz
Chair, School of Physics and Astronomy

הענקת המלגה ע"ש ג'ון בקל
למר נבות זילברשטין, תלמיד לתואר ראשון

Presentation: The John Bahcall Fellowship
to Mr. Navot Silberstein, undergraduate student

פרופסור דיוויד ויינברג

ראש המחלקה לאסטרונומיה
אוניברסיטת אוהיו, מעבדת מקפרסון, קולומבוס, אוהיו, ארה"ב

Professor David Weinberg

Chair, Astronomy Department, Ohio State University
McPherson Laboratory, Columbus, Ohio, USA

Lecture | הרצאה

DECODING THE ORIGIN OF ELEMENTS AND THE HISTORY OF THE GALAXY

Abstract

Giant surveys that measure the multi-element chemical fingerprints of hundreds of thousands of stars allow dramatic advances in understanding the history of our Galaxy and the origin of the elements. I will discuss insights from the Apache Point Observatory Galactic Evolution Experiment (APOGEE) of the Sloan Digital Sky Survey and from analytic and numerical models of the chemical enrichment history of the Milky Way. Elemental abundances and abundance ratios tend to approach an equilibrium in which element production from nucleosynthesis is balanced by element depletion from star formation and outflows. For conventional supernova yields, reproducing observed abundances requires outflows in which the Milky Way and similar galaxies eject 1-3 times as much gas as they form into stars. APOGEE observations show that the distributions of stars in (magnesium, iron, age) -space change steadily across the Galactic disk, revealing complexities in the history of the Milky Way. Given these distributions, however, the behavior of other APOGEE abundance ratios can be explained by changes in the ratio of enrichment from core collapse supernovae vs. thermonuclear (Type Ia) supernovae. The separability of this "multi-element cartography" offers a route to empirically constraining the nucleosynthetic yields from supernovae in a way that is insensitive to uncertainties in other aspects of Galactic chemical evolution. While many of these empirical inferences agree with theoretical predictions, some of them are quite surprising.

The lecture will take place on Sunday,
2 June 2019, at 14:00, in
Melamed Hall (6), Shenkar Physics Building,
Tel Aviv University, Ramat Aviv.

ההרצאה תתקיים ביום ראשון,
2 ביוני 2019, בשעה 14:00,
באולם מלמד (6), בניין שנקר לפיזיקה,
אוניברסיטת תל אביב, רמת אביב.

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

Prof. Dan Maoz and Prof. David Weinberg

Prof. David Weinberg ast at his lecture

School of Physics and Astronomy
The Raymond and Beverly Sackler
Faculty of Exact Sciences
Tel Aviv University

בית הספר לפיזיקה ולאסטרונומיה
הפקולטה למדעים מדויקים
ע"ש ריימונד ובברלי סאקלר
אוניברסיטת תל אביב

July 15, 2019
MK - 5101

Prof. David Weinberg – Summary of visit

Prof. David Weinberg from Ohio State University visited Tel Aviv University from 28/5/19 until 03/6/19, as an Emilio Segre Distinguished Lecture in Physics Endowed by Raymond and Beverly Sackler.

Prof. Weinberg has been an active member of the science formulation teams for NASA's Wide Field Infrared Survey Telescope mission and co-chair of the Bright Galaxy Survey working group for the Dark Energy Spectroscopic Instrument collaboration. He was awarded the American Astronomical Society's Lancelot Berkeley Prize for his contributions to the SDSS-III Baryon Oscillation Spectroscopic Survey.

During his visit, Prof Weinberg gave the yearly John Bahcall Lecture in Astrophysics titled "Decoding the origin of elements and the history of the galaxy". His lecture discussed insights from the Apache Point Observatory Galactic Evolution Experiment (APOGEE) of the Sloan Digital Sky Survey and from analytic and numerical models of the chemical enrichment history of the Milky Way. The lecture attracted faculty and graduate students and raised a lot of interest in the Tel Aviv University community. Prof. Weinberg has met with several faculty members and students and discussed topics of mutual interest.

On behalf of Prof Weinberg 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.

Sincerely,

Prof. Dan Maoz,
Chair, School of Physics and Astronomy
Tel Aviv University

קריית האוניברסיטה, ת"ד 39040, רמת אביב, תל אביב 6139001 | טל': 03-6408636, 6409274 | פקס: 03-6429306

PROFESSOR RICHRD SALMON

Prof. Rick Salmon, Guest Lecturer at the Yuval Ne'eman Distinguished Lectures in Geophysics, Atmosphere and Space Sciences Endowed by Raymond and Beverly Sackler for the Academic Year 2018/9, is a Professor Emeritus at the Scripps Institution of Oceanography of the University of California, San Diego.

In 1975, Prof. Salmon received a Ph.D. in physical oceanography from the Scripps Institution of Oceanography and joined the SIO faculty in 1978. Additionally, Prof. Salmon has been strongly involved in the Wood Hole Oceanographic Institution as a participant in the Geophysical Fluid Dynamics workshop, serving there as steering committee member and a director as well. In 1996 he was elected a fellow of the American Geophysical Union and a fellow of the American Academy of Arts and Sciences. In 1998 Oxford University Press published his textbook "Lectures on Geophysical Fluid Dynamics."

Prof. Salmon's research interests include the large scale circulation of the atmosphere and ocean, statistical theories of turbulence, the development of numerical algorithms that maintain conservation laws, the interactions between waves and currents, and the application of Lagrangian methods to fluid dynamics.

אוניברסיטת תל אביב
TEL AVIV UNIVERSITY

ההרצאות המיוחדות
בגיאופיזיקה, במדעים אטמוספריים ובמדעי החלל
על שם יובל נאמן נתרמו ע"י ריימונד ובברלי סאקלר

Yuval Ne'eman Distinguished Lectures
in Geophysics, Atmosphere and Space Sciences
Endowed by Raymond and Beverly Sackler

פרופסור ריצ'ארד סלמון

מכון סקריפס לאוקיינוגרפיה
אוניברסיטת קליפורניה בסן דיאגו, לה ג'ולה, קליפורניה, ארה"ב

Professor Rick Salmon

Scripps Institution of Oceanography
University of California San Diego
La Jolla, California, USA

Colloquium | קולוקוויום

LAGRANGIAN METHODS IN FLUID MECHANICS

The Colloquium will take place on Monday,
25 March 2019, at 11:10,
Holcblat Hall (7), Shenkar Physics Building,
Tel Aviv University, Ramat Aviv

הקולוקוויום יתקיים ביום שני,
25 במרץ 2019, בשעה 11:10,
אולם הולצבלט (7), בניין שנקר לפיזיקה,
אוניברסיטת תל אביב, רמת אביב

Colloquium | קולוקוויום

THE ANALOGY BETWEEN ELECTRODYNAMICS AND FLUID MECHANICS

The Colloquium will take place on Monday,
1 April 2019, at 11:10,
Holcblat Hall (7), Shenkar Physics Building,
Tel Aviv University, Ramat Aviv

הקולוקוויום תתקיים ביום שני,
1 באפריל 2019, בשעה 11:10,
אולם הולצבלט (7), בניין שנקר לפיזיקה,
אוניברסיטת תל אביב, רמת אביב

Lecture | הרצאה

ENTROPY BUDGET AND COHERENT STRUCTURES ASSOCIATED WITH A SPECTRAL CLOSURE MODEL OF TURBULENCE

The lecture will take place on Thursday,
4 April 2019, at 13:15, Room 106,
The Porter Environmental Studies Department Building
Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום חמישי,
4 באפריל 2019, בשעה 13:15,
חדר 106, בניין החוג ללימודי הסביבה ע"ש פורטר,
אוניברסיטת תל-אביב, רמת-אביב

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

Mortimer and Raymond Sackler Institute of Advanced Studies
https://ias.tau.ac.il/

Prof. Roy Barkan, Prof. Rick Salmon and Prof. Eyal Heifetz

Prof. Rick Salmon at his lecture

●●● School of Geosciences

●●● בית הספר למדעי כדור הארץ

The Raymond and Beverly Sackler Faculty of Exact Sciences
Tel Aviv University

הפקולטה למדעים מדויקים ע"ש ריימונד ובברלי סאקלר
אוניברסיטת תל אביב

Scientific Report on Professor Richard Salmon's visit in March-April 2019

Professor Richard (Rick) Salmon from the Scripps Institution of Oceanography at the University of California, San Diego had visited us from March 22 until April 7, 2019. Prof. Salmon was the Yuval Ne'eman Distinguished Lectures in Geophysics Atmospheric and Space Sciences, Endowed by Raymond and Beverly Sackler, guest for the academic year 2018/2019.

During his visit, Rick has delivered three different talks, two colloquia and one informal talk. The first colloquium, "LAGRANGIAN METHODS IN FLUID MECHANICS", overviewed the concept and the different implementations of the Lagrangian approach to fluid mechanics. This talk was aimed for the general audience of the Exact Sciences Faculty. The second colloquium, given in the week after, "THE ANALOGY BETWEEN ELECTRODYNAMICS AND FLUID MECHANICS", was based on the previous colloquium and drew analogies between the two different fields of fluid dynamics and electrodynamics. Rick showed elegantly how these analogies enrich the two separated fields. This talk was aimed for the general audience of the Exact Sciences Faculty, as well as for the Geophysics department itself. The third talk "ENTROPY BUDGET AND COHERENT STRUCTURES ASSOCIATED WITH A SPECTRAL CLOSURE MODEL OF TURBULENCE" was aimed for the specific group of researchers and graduate students in the field of atmospheric and oceanic sciences. Therefore, it was given in an informal group meeting that lasted for more than two hours. In this talk, Rick presented a new understanding to the evolution of quasi-2D turbulence, which highlights the role of the stretching tensor in the energy inverse cascade mechanism.

During the two weeks visit, Rick met quite a few faculty members and graduate students from the geophysics department, from the mechanical engineering department and from other universities in Israel. Most of the scientific exchanges had been done with Dr. Roy Barkan, who is a new faculty member in the Geophysics department, and myself. During his visit, Rick and I began to formulate the generalized Lagrangian of the linearized barotropic and quasi-geostrophic dynamics. The goal is to find a variational principle that provides the physics of this system. It seems that we are now converging into writing a scientific paper that will be submitted to a leading scientific journal in our field.

Overall, Prof. Salmon is one of the "deep thinkers" in the field of fluid dynamics in general and geophysical fluid dynamics in particular. I have received many positive feedbacks both from the faculty members and the students that discussed their work with him. Some of them highlighted how these conversations shed a new light on their research.

I would like to thank the Institute of Advanced Studies (IAS) for the outstanding hospitality of the visit and personally thank Ms. Ronit Nevo, IAS's administrative director, whose organizing abilities and dedication are truly unique and highly appreciated.

Sincerely,

Prof. Eyal Heifetz

●●● קריית האוניברסיטה, ת"ד 39040, רמת אביב, תל אביב 6139001 | טל': 03-6409280, 03-6408633 | פקס: 03-6409282

PROFESSOR HENRI BERESTYCKI

Prof. Henri Berestycki, is a Guest Lecturer at the Raymond and Beverly Sackler Distinguished Lectures in Pure Mathematics 2018/19. He is a professor of "classe exceptionnelle", chair of Mathematical analysis and modelling (since 2001) at EHESS (École des hautes études en sciences sociales), Paris, and Dean of Research, PSL Research University, Paris. His current research interests include non-linear partial differential equations, reaction-diffusion equations, mathematical models in biology and especially in ecology, and modelling in social sciences, in particular, the study of financial markets, urban planning, criminology, and the dynamics of riots.

Recently, Prof. Berestycki obtained two major grants: the FRG NSF grant in the USA (2011-2014), DMS-1065971, with Luis Cafarelli, Yanyan Li, Fanghua Lin and Luis Silvestre for activities based at the University of Chicago (awarded to H. Berestycki and L. Silvestre), and the European ERC advanced ("Senior") grant 2013-2018, project "ReaDi", Reaction-Diffusion Equations, Propagation and Modelling.

Prof. Berestycki has received a number of honors for his work: Prize Carrière (1988) and prize Sophie Germain (2004) from the Académie des Sciences Paris, the Humboldt Award from the Humboldt Foundation, Germany (2004), the Knight of the Legion of Honor (Chevalier de la Légion d'Honneur) (2010), he is also a Fellow of the American Mathematical Society (2012) and a Foreign Honorary Member of the American Academy of Arts and Sciences (2013).

Prof. Berestycki is the author of over 140 articles in international scientific journals, and currently serves as an Editorial Board member of: Analysis in Theory and Applications, Annales de l'Institut Henri Poincaré – Analyse non linéaire, Annali di Matematica Pura ed Aplicata, Communications in Contemporary Mathematics, Journal of Differential Equations, Networks and Inhomogeneous Media.

אוניברסיטת תל אביב
TEL AVIV UNIVERSITY

ההרצאות המיוחדות
במתמטיקה עיונית
על שם ריימונד ובברלי סאקלר

Raymond and Beverly Sackler
Distinguished Lectures
in Pure Mathematics

פרופסור הנרי ברסטיצקי

הקתדרה לאנליזה ומידול מתמטי
ביה"ס ללימודים מתקדמים במדעי החברה
אוניברסיטת PSL, פריז, צרפת

Professor Henri Berestycki

Chair, Mathematical Analysis and Modelling
L'École des hautes études en sciences sociales
PSL University, Paris, France

סמינר לגיאומטריה ודינמיקה

Lecture in the framework of
the Geometry and Dynamics Seminar

REACTION- DIFFUSION EQUATIONS IN GENERAL DOMAINS

Abstract

Reaction-diffusion equations are ubiquitous in modelling in the life sciences as an approach to spatial propagation and diffusion. They also arise in physics, and, more recently, in social sciences. After describing the mechanism of reaction and diffusion, I will review some classical properties. I will then mention more recent works dealing with non-homogeneous media. I will emphasize here the role played by the domain of propagation.

The lecture will be held on Wednesday,
12 June 2019, at 14:10,
Room 309, Schreiber Building,
Tel-Aviv University, Ramat-Aviv

ההרצאה תתקיים ביום רביעי,
12 יוני 2019, בשעה 14:10,
חדר 309, בניין שרייבר,
אוניברסיטת תל-אביב, רמת-אביב

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

Mortimer and Raymond Sackler Institute of Advanced Studies
http://www.tau.ac.il/institutes/advanced/

Prof. Henri Berestycki and Prof. Leonid Polterivich

Prof. Heri Berestycki at his lecture

●●● Pursuing the Unknown

●●● בעקבות הלא נודע

School of Mathematical Sciences
The Raymond and Beverly Sackler
Faculty of Exact Sciences
Tel Aviv University

בית הספר למדעי המתמטיקה
הפקולטה למדעים מדויקים
ע"ש ריימונד ובברלי סאקלר
אוניברסיטת תל אביב

Ms. Ronit Nevo, Administrative Manager

The Mortimer and Raymond Sackler Institute of Advanced Studies

Tel Aviv University

July 3, 2019

Visit of Prof. Henri Berestycki – Sackler Fellow 2018/2019

Prof. Henri Berestycki received world recognition for his seminal contribution to various facets of non-linear analysis in its applications in mathematical physics, fluid dynamics and combustion. His recent research includes mathematical modeling in economics, biology and social sciences.

Prof. Berestycki holds the Chair of Mathematical analysis and modeling at École des hautes études en sciences sociales in Paris. He served as a co-director of the Stevanovich Center for financial mathematics at University of Chicago and as the Dean of Reseach, PSL University, Paris in 2015-2017.

Henri Berestycki's honors include the Sophie Germain Prize of the French Academy of Sciences (2004), the Gay-Lussac-Humboldt-Prize for outstanding French and German researchers in all disciplines (2004) and the French Legion of Honor (2010). Berestycki is a Foreign Honorary Member of the American Academy of Arts and Sciences.

During his visit to Tel Aviv University in the period June 6 – June 14, 2019. Prof. Berestycki delivered a seminar talk (12.06) "Reaction-diffusion equations in general domains". The focus of the lecture was on reaction-diffusion equations appearing in modelling in the life sciences as an approach to spatial propagation and diffusion. They also arise in physics, and, more recently, in social sciences. The lecture attracted faculty and graduate students from pure and applied mathematics, as well as from other universities in Israel, and it caused very lively discussions.

Additionally, we discussed with Prof. Beresticky several topics of mutual interest in the field of mathematical physics.

Sincerely,

Leonid Polterovich
Professor, The Gordon Chair,
School of Mathematical Sciences
Tel-Aviv University, Israel

PROFESSOR DAVID HUNTER

Dr. David G. Hunter, MD, PhD, Guest Lecturer at the Saul J. Farber Distinguished Lectures in Medicine Endowed by Raymond and Beverly Sackler for the academic year 2018/2019, is Ophthalmologist-in-Chief and the Richard M. Robb Chair of Ophthalmology at Boston Children's Hospital, President of the Children's Hospital Ophthalmology Foundation, Professor and Vice Chair of Ophthalmology at Harvard Medical School.

Dr. Hunter obtained a Bachelor of Science in electrical engineering from Rice University (1979) and a PhD (in Cell Biology) and MD from Baylor College of Medicine in Houston (1987). After he completed an ophthalmology residency at Harvard's Mass Eye and Ear Infirmary, he was a fellow at the Wilmer Ophthalmological Institute, Johns Hopkins University (1991-1992), where he remained on faculty until 2002, when he was selected as Ophthalmologist-in-Chief at Boston Children's Hospital. During Dr. Hunter's time at Boston Children's Hospital, the Department of Ophthalmology has grown to become the largest pediatric ophthalmology department nationally.

Dr. Hunter's clinical and research interests focus on strabismus and amblyopia. He is developing new approaches to strabismus surgery for complex cases, including adjustable sutures that can be adjusted several days after surgery, and superior rectus transposition (SRT) for Duane syndrome and sixth nerve palsy. For more than 20 years he has been developing laser technology to scan the eye and identify eye disease, including new approaches to identifying amblyopia in young children early in life using a non-invasive, rapid diagnostic scan. This has led to the invention of retinal birefringence scanning (RBS), a patented method that can detect the fixation of the eye from a distance, and the impending development of an RBS-based product known as the Pediatric Vision Scanner (PVS). Dr. Hunter is founder and owner of REBIScan, LLC, the company that produces the PVS for use in pediatric offices and community vision screening programs.

Dr. Hunter is the coauthor of *Learning Strabismus Surgery: A Case-Based Approach* and *Last Minute Optics*, a widely used optics review book (now in its second edition). He teaches pediatric ophthalmology as well as optics and refraction to ophthalmology residents at Harvard and worldwide, and takes an active role in the media, educating families about topics of relevance to pediatric ophthalmology. He was Editor-in-Chief of the *Journal of the American Association of Pediatric Ophthalmology and Strabismus* (2006-2012), and the 2010-2011 Vice President of the Association for Research in Vision and Ophthalmology.

Dr. Hunter has received numerous honors and awards, among them are *National Children's Eye Care Foundation Award* (1991-1992); *Whitaker Foundation Young Investigator Award* (1993-1996); *Clinician Scientist Award, Johns Hopkins University* (1994-1996); *Research to Prevent Blindness, Lew R. Wasserman Merit Award* (1999); *and Research to Prevent Blindness, Walt/Lilly Disney Amblyopia Research Award* (2005).

ההרצאות המיוחדות ברפואה
על שם שאול פרבר
תרומת קרן סאקלר

החוג לרפואת עיניים
הפקולטה לרפואה ע"ש סאקלר

אוניברסיטת תל אביב
TEL AVIV UNIVERSITY

Saul J. Farber
Distinguished Lectures in Medicine
Endowed by The Sackler Foundation

Department of Ophthalmology
Sackler Faculty of Medicine

CUTTING EDGE IN PEDIATRIC-OPHTHALMOLOGY

Friday, October 5, 2018, Lola Auditorium | Sackler Faculty of Medicine, Tel Aviv University

Program **תכנית**

Opening remarks 08:45-09:00 **מילות פתיחה**

Prof. Hani Verbin, Head, Ophthalmology Department, TAU
פרופ' חני ורבין, ראש החוג לרפואת עיניים, אונ' ת"א

Prof. Nitza Goldenberg-Cohen, Chair, Ophthalmology Department, Bnai Zion Medical Center, Haifa
פרופ' ניצה גולדנברג-כהן, מנהלת מחלקת עיניים, המרכז הרפואי בני ציון, חיפה

Dr. Alvit Wolf, Pediatric Ophthalmology, Ophthalmology Department, Carmel Medical Center, Haifa
ד"ר עלוית וולף, רופאת עיניים לילדים, מחלקת עיניים, מרכז רפואי כרמל, חיפה

David G. Hunter, MD, PhD

Ophthalmologist-in-Chief,
Boston Children's Hospital
Professor of Ophthalmology,
Harvard Medical School
Boston, Massachusetts, USA

ד"ר דיוויד האנטר

ראש מחלקת עיניים, בית חולים לילדים בוסטון
פרופסור לרפואת עיניים, ביה"ס לרפואה,
אוניברסיטת הרווארד
בוסטון, מסצ'וסטס, ארה"ב

09:00-09:45
AMBLYOPIA - WHAT IS NEW?

09:45-10:30
NEW TECHNIQUE FOR THIRD PALSY: TRANSPOSITION OF SPLIT LATERAL RECTUS MUSCLE FOR COMPLETE OCULOMOTOR NERVE PALSY

10:30-10:45
SEDATED SUTURE ADJUSTMENT IN CHILDREN UNDERGOING ADJUSTABLE SUTURE STRABISMUS SURGERY

Coffee Break 10:45-11:15 הפסקת קפה

11:15-12:00
COMPARISON OF BOTULINUM TOXIN WITH SURGERY FOR THE TREATMENT OF ACUTE - ONSET COMITANT ESOTROPIA IN CHILDREN

12:00-12:45
BIFOCALS FAIL TO IMPROVE STEREOPSIS OUTCOMES IN HIGH AC/A ACCOMMODATIVE ESOTROPIA

PANEL DISCUSSION
Challenging cases presented by the Israeli Pediatric Ophthalmology Society

Mortimer and Raymond Sackler Institute of Advanced Studies
https://ias.tau.ac.il/

Prof. Hani Verbin - Head, Ophthalmology Department, Prof. David Hunter and Prof. Nitza Goldenberg-Cohen

Prof. David Hunter at his lecture

המרכז הרפואי בני ציון BNAI ZION Medical Center
עיריית חיפה, משרד הבריאות
הפקולטה לרפואה, הטכניון
Faculty of Medicine, Technion
מח' עיניים
Department of Ophthalmology

October 7, 2018

Saul J. Farber Distinguished Lecturer
in Medicine Endowed by the Sackler Foundation

RE: Prof. David Hunter's visit in Tel Aviv University

Professor David Hunter, **Ophthalmologist-in-Chief, Boston Children's Hospital Boston, Massachusetts, USA,** and the Richard M. Robb Chair of Ophthalmology at Children's Hospital Boston, President of the Children's Hospital Ophthalmology Foundation, Professor and Vice Chair of Ophthalmology at Harvard Medical School participated at a clinical meeting at the Tel Aviv University on October 5, 2018. His visit from October 3 to October 6 was dedicated to intensive meetings with Pediatric Ophthalmologists, General Ophthalmologists and specific evening talks on optics to residents.

During the course of his visit, Prof. Hunter gave an entire afternoon in Haifa, "Optics Basic Concepts" for the Israeli residents from all the country, including four talks of last minute optics.
The meeting at TAU began with Prof. Hunter presenting new techniques and devices to detect vision problems in toddlers. The talk covered the theoretical and practical use of his knowledge in engineering and the advanced screening tool developed based on his original thinking. Nowadays the device is becoming commercial. His focus was on new techniques to operate complicated strabismus, especially in the presence of cranial nerve palsy were presented. Also the adjustable suture procedure.

Prof. Hunter also discussed Botox injections as optional treatment to replace the traditional strabismus operation for esotropia. He showed good results with short treatment and almost no intervention.
He also questioned the need of bifocal glasses for accommodative esotropia, and "killed a holy cow".
The auditorium was full with delighted ophthalmologists, among them all the senior Israeli Pediatric ophthalmologists, four of them trained by him. The residents also enthusiastically participated in both days.

These meetings have yielded a number of future collaborations between Prof. Hunter and the Israeli Ophthalmologist community.

In summary, this visit was highly successful, and contributed significantly, not only from the scientific point of view, but also in strengthening the connections between Tel Aviv University and an internationally recognized leader clinical-scientist. Prof. Hunter, who came for the first time in his life to Israel, enjoyed very much his visit in Israel and promised to return.

The Israeli Ophthalmology Society, the Pediatric Ophthalmology Society and I are very grateful to the Sackler Institute for supporting Professor Hunter's fellowship in Tel Aviv. It was most rewarding for everyone concerned.

Respectfully,

Nitza Goldenberg-Cohen, MD
Head, Ophthalmology Department, Bnai Zion Medical Center.