

IPS 2021 Rerview Talks

Dear Members of the IPS,

We have updated the and one can now find a list of the **review talks** to be presented at the upcoming conference 22.2.21, as well as the **IPS Fellows and awards**.

The review talks include:

Mark Herrmann (LLNL) - Recent Progress in High Energy Density Science on the National Ignition Facility

Mark Herrmann was until recently the director of the National Ignition Facility (NIF), the world's largest laser.

NIF is the world's most precise and reproducible laser system. It precisely guides, amplifies, reflects, and focuses

192 powerful laser beams into a target about the size of a pencil eraser in a few billionths of a second,

Those extreme conditions cause hydrogen atoms in the target to fuse and release energy in a controlled thermonuclear

reaction.

In his talk he will briefly survey the progress in high energy density science on the NIF and update the status of efforts in

fusion ignition.

Sara Seager (MIT) - The Search for Signs of Life Beyond Earth by Way of Atmospheric Biosignature Gases

Astronomers have discovered around 4,000 exoplanets to date and are beginning to probe the upper atmospheres of

some of those worlds. They search for biosignatures, like molecules with chemistry that doesn't make

sense on the basis of non living processes. Such molecules are an indication for possible life on these exoplanets.

Eli Waxman (WEI) - Israel's response to Covid-19: The perspective of the expert team advising the NSC

During the March-May 2020 Covid-19 outbreak in Israel Eli Waxman led a team of independent experts, who voluntarily

consulted the Israeli NSC, the authority that assumed responsibility for coordinating the government actions, on the

management of Israel's response to the pandemic.

Emphasis will be given in the talk to the issue of the role of the academy in crisis management.

Nirit Dudovich (WEI) - Attosecond Interferometry

Attosecond science is a young field of research that has rapidly evolved over the past decade. It has allowed researchers experimentally access the motion of electrons on the atomic scale. Further application of these schemes provides direct insights into a range of fundamental phenomena

in nature, from tunneling and photoionization in atomic systems to ultrafast chiral phenomena and attosecond scale currents in solids.

Geraldine Servant (DESY) -TBA

Geraldine Servant is a member of the DESY theory group and is appointed with the University of Hamburg.

Her major direction of research is on the particle-cosmology interplay, in particular on the dark matter and the origin of the matter-antimatter asymmetry of the universe.

Yochai Ben Horin (Soreq)- Lesson learned from the CTBT monitoring system analysis of the Democratic People's Republic Korea Nuclear explosions

The scientific challenge of the Comprehensive Nuclear-Test Ban Treaty verification regime is to identify events in the

atmosphere, underground and underwater that may be the results of a nuclear explosion. In order to meet the challenge

it was decided to build a monitoring system composed of 320 measurement stations from four technologies; Seismology,

Hydroacoustic, Infrasound and Radionuclide.

From 2000, the year the CTBT organization received responsibility for the operation of the monitoring system, all nuclear

explosions performed by one state, Democratic People's Republic Korea (DPRK), were successfully detected.

Roman Shnabel (Hamburg University)-Squeezed light - now exploited by all gravitational-wave observatories

The 2017 Nobel Prize in Physics has been awarded to three key players in the development and ultimate success of the

Laser Interferometer Gravitational-wave Observatory (LIGO). Since April 1st, 2019 observation in Advanced LIGO and

Advanced Virgo have detected more than one gravity wave event per week. This enhanced detection ability is due to the

use of squeezed light detection.

In his talk Roman Shnabel shall present a clear description of why a squeezed photon counting statistic is rather remarkable.

Paul Kamoun (Lev Academic Center), Mike Nolan(The University of Arizona)-The Arecibo Observatory: Insiders' View of its Legacy

Since its completion in November 1963, the Arecibo Telescope was a leading world observatory for radar and radio astronomy,

with key discoveries on planets, stars, galaxies, and fundamental physics as well as Near-Earth object detection and Search

for extra-terrestrial intelligence (SETI). Unfortunately, numerous hurricanes and earthquakes damaged parts of the telescope,

leading to its collapse in the fall of 2020 and a great loss for the astronomy community.

With best regards,

The organizing committee.

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