Message from the Chair

The 2021 March Meeting is coming up and those joining us for the first online March Meeting can look forward to a great program with many exciting GSNP sessions. These sessions are made possible through your membership, so thank you! And a BIG thank you to Tom Witten, our fantastic GSNP Program Chair. He has led us through the unprecedented process of designing an all-virtual meeting with incredible skill, and I look forward to seeing you all there.

GSNP’s percentage of APS continues to grow despite the trials of a pandemic year. Our fraction of APS membership increased from 2.7% to 2.8% and we are on a strong track to reach the threshold of 3% when we can apply for division status. We need to make every effort at the virtual March Meeting to continue this upward trend. Increasing membership has a number of positive effects, among them more invited March Meeting sessions and more GSNP fellowship slots. Further, as a division we would have direct representation in the APS council and therefore more influence over the broader activities of the APS. Please continue to urge your students, post-docs, and colleagues to join GSNP.

The March Meeting marks the annual shift in GSNP leadership as well. At the conclusion of the March Meeting, I will pass leadership of the group to the capable hands of Tom Witten; Cynthia Reichhardt becomes Program Chair, and Danielle Bassett joins the team as Vice Chair. We also welcome new Members-at-Large, Cacey Bester and Mahesh Bandi to join current members Daphne Klotsa, John Bechhoefer, Shubha Tewari, and Greg Voth. We also thank Nicholas Ouellette and Danielle Bassett for their service as they rotate off as members at large this year. Dvora Perahia will continue her pivotal role as secretary/treasurer. Without her expertise and guidance, the whole executive committee would be lost. Finally, we thank Daniel Lathop for his four years of service in the chair line. Please join with me in thanking all of these extraordinary people for their tireless efforts in leading our unit. And thank YOU for your continuing support of GSNP – it’s what makes all of our efforts possible.

Best wishes for a hopefully less stressful 2021,

Mark D. Shattuck

APS’s Engage Web Site to Boost our Participation

If you have navigated to the [aps.org’s site for the GSNP](https://aps.org), you have noticed a change. The site has a new look, and new interactive features. If you log in with your APS member credentials, you will see a link to a member directory, a discussion list, and a place to enter profile information about yourself. There is also a repository of GSNP documents, including this newsletter. The APS provides content from Physical Review tagged for GSNP. There are selected job listings, and a place for forum discussions.
k log W Virtual Seminar Series Inaugurated

In August 2020, APS-GSNP launched a monthly virtual seminar series that takes place via Zoom, allowing us to reach interested participants from around the world. Andrea Liu, the Hepburn Professor of Physics at the University of Pennsylvania gave the inaugural seminar. Lectures by Sriram Ramaswamy of the Indian Institute of Science, Bengaluru, Erica Eiser of University of Cambridge, Yael Roichman of Tel Aviv University and Nigel Goldenfeld of University of Illinois followed. February’s lecture is by Tanniemola Liverpool of the University of Bristol, pictured at left.

The k log W website tells how to attend and offers recordings of past talks.

2019-2020 Prizes and Awards

Leo P. Kadanoff Prize

The Kadanoff Prize, first awarded in 2019, recognizes scientists whose work has opened up new vistas in statistical physics and/or nonlinear science. The prize comes with $10,000, the Kadanoff Medal, and a certificate

Nigel Goldenfeld, of the University of Illinois at Urbana-Champaign, won the 2020 prize “For profound contributions to the fields of dynamical pattern formation, superconductivity, and fluid turbulence, together with creative developments and exposition of the theory of the renormalization group.”

Sidney Redner of the Santa Fe Institute is the 2021 recipient. Redner’s prize was awarded “For leadership in transcending traditional disciplinary boundaries by applying and advancing deep concepts and methods of statistical physics to gain novel insights into diverse real-world phenomena.”

A prize session at the 2021 March APS meeting (session C18) will feature four talks honoring both winners. Erwin Frey of Ludwig-Maximilians-Universitaet Munich will highlight the impact of Goldenfeld’s work. Likewise, Satya Majumdar of University of Paris will highlight Redner’s work.

Nominations for the 2022 Leo P. Kadanoff Prize are due by Monday, June 1, 2021. Please nominate a deserving scientist or scientists, be they experimentalists, theorists, or computational scientists, who have pushed the boundaries of statistical or nonlinear science.
Lars Onsager Prize

The Lars Onsager Prize was established to recognize outstanding research in theoretical statistical physics including the quantum fluids. The prize consists of $10,000 as well as a certificate citing the contribution made by the recipient. It has been presented annually since 1997.

John Toner  Tamás Vicsek  Yuhai Tu  Lev P. Pitaevskii

The 2020 prize was awarded to three scientists, John Toner of University of Oregon; Tamás Vicsek of Eötvös University and Yuhai Tu IBM T. J.Watson Research Center "For seminal work on the theory of flocking that marked the birth and contributed greatly to the development of the field of active matter."

The 2021 prize was awarded to Lev P. Pitaevskii University of Trento "For originating the Gross-Pitaevskii theory of non-uniform Bose-Einstein condensates and subsequent extensive contributions to the theory of quantum fluids, especially as applied to ultracold atomic gases."

A prize session at the 2021 March APS meeting (session J08) will feature the talks of the 2020 and 2021 prize winners.

Nominations for the 2022 Lars Onsager Prize are due by Monday, June 1, 2021. Please nominate a deserving scientist or scientists.

New APS Fellows

Each year, the GSNP Fellowship Committee reviews nominations for APS Fellowship and makes recommendations to the APS. The total number of APS Fellows who may be elected in a given year is limited to one-half of one percent of the total APS (non-student) membership. Obviously, the selection process is quite competitive. The 2019 committee, chaired by Tom Witten, selected four new Fellows, while the 2020 committee, chaired by Cynthia Reichhardt, selected three new Fellows.

Congratulations to GSNP newest Fellows!

Gavin Crooks, X, the moonshot factory, "For the discovery of the Crooks Fluctuation Theorem linking nanoscale fluctuations far from equilibrium to thermodynamics." (2019)

Flavio Fenton, Georgia Institute of Technology, "For ground-breaking contributions to the nonlinear dynamics of cardiac arrhythmia." (2019)

José Mendes, University of Aveiro, "For important advances in complex network science including preferential attachment, node aging, and modification of network links." (2019)

James Sethna, Cornell University, "For seminal and wide-ranging contributions to information geometry, ‘sloppy models,’ crackling noise, fracture, and emergent self-similarity." (2019)

Guido Caldarelli, University of Venice “Ca’Foscari,” “For major contributions to understanding the disorder effects in self-similar phenomena, particularly in real scale-free networks and in theoretical models.” (2020)
Ronald Dickman, Federal University of Minas Gerais, “For pivotal theoretical and computational contributions to understanding polymer fluids, nonequilibrium phase transitions, self-organized criticality, and steady-state thermodynamics.” (2020)

Sergei Maslov, University of Illinois, Urbana-Champaign, “For seminal discoveries and contributions to the dynamics and statistical physics of networks, with wide-ranging applications in physics, self-organizing systems, information networks, and complex biological systems.” (2020).

The new fellows are pictured in the above order from left to right below.

The nomination process is already open for the next class of APS Fellows, and the deadline is June 1, 2021. We encourage you to nominate deserving colleagues.

Dissertation Award in Statistical and Nonlinear Physics

The GSNP Dissertation Award, established in 2017, recognizes exceptional young scientists who have performed original doctoral thesis work of outstanding scientific quality in the area of statistical and nonlinear physics. This annual award consists of $2,000, a certificate, travel, and a registration waiver to receive the award and give an invited talk at the March Meeting. The 2020 winner was Suraj Shankar, now a Junior Fellow at Harvard University, honored “For an outstanding doctoral thesis that blends geometry and statistical mechanics to uncover new topological phenomena in both equilibrium and active soft matter physics.” Shankar spoke at the online award session held during the 2020 March meeting. His talk can be viewed here. No award was given for 2021. Nominations for next year’s award are due August 15, 2021.

Student and Postdoctoral Speaker Awards

Each year the GSNP awards a Student Speaker Award and a Postdoctoral Speaker Award for the best contributed talks at the March Meeting by a graduate student and a post-doc, respectively, in the area of statistical and nonlinear physics. Five finalists are chosen for each award, and all finalists receive travel support of $500 to attend the March Meeting. The winner will also receive a $1,000 award and each of the other four finalists will receive $500 awards. The 2019-2020 finalist selection committee chaired by Daniel Lathrop selected outstanding candidates. Because of COVID19 they presented their talks electronically.

Student finalists: Guram Gogia of Emory University, Eric Jones of UCSB, Jinghui Liu of MIT, Janaki Sheth of UCLA and Menachem Stern of University of Chicago. Menachem Stern was chosen as the winner. Postdoc Finalists: Michael Czajkowshi of Georgia Tech, Aminur Rahman of Texas Tech University, Sean Seyler of Arizona State University and Dong Wang of Yale. Michael Czajkowshi was chosen as the winner of the award.

Nominations for next year’s award are due August 15, 2021
2020 Election Results

Danielle Bassett of the University of Pennsylvania will be the new Vice Chair. After a year as Vice Chair, Dani will serve a year as Chair Elect, a year as Chair, and finally a year as Past Chair.

Casey Bester of Swarthmore College and Mahesh Bandi of Okinawa Institute of Science and Technology Graduate University, in Japan, have been elected to serve 3-year terms as members-at-large.

The elections were close, and we would like to thank the other candidates. This year’s nominations committee was chaired by Daniel Lathrop.

Congratulations to the newest members of the GSNP Executive Committee!

GSNP Executive Committee 2021
& Incoming Members

2021 APS March Meeting at Glance

As the pandemic hit last March, most of our activity meters slid quickly from the “busy” band deep into the red “overwhelmed” zone. We scrambled to overhaul our classes, redirect our research groups, lead university crisis responses and calm disrupted family life. Less urgent jobs languished. But as months passed, the drive to get data, run calculations and explain findings took hold again.

This year’s March Meeting program reflects that drive. It assembles two years’ worth of discoveries, insights and celebrations with two prize sessions, five invited symposia, 19 focus sessions led by an invited speaker, and 13 stimulating contributed sessions, plus dozens of sessions cosponsored by other APS Units.

According to Vinaya Sathyasheelappa, the APS March Meeting czar, all registered participants will receive a link to the meeting by email shortly before it starts. The link takes you to a web page that lists all sessions by their ID number (eg. A18). Once in a session you will see a webinar-like environment via your web browser. You will see the speaker and chair and be able to ask questions via a text window next to the speaker window.
After each three-hour session there will be an interactive zoom-like session where participants can discuss together.

GSNP Get-Together Virtual Space will be available to us where we can congregate similar to our Membership Desk in previous in-person March Meetings. This zoom-like space with sub-rooms for the GSNP will be available to us mid-day Tuesday-Friday and after the technical sessions Thursday and Friday.

There will also be an all-APS space on the gather.town platform mainly for students to meet with grad school representatives. Our GSNP business meeting will be a zoom-like all-to-all remote meeting.

Here are some highlights, meeting program. Listed times are US Central time.