



GSNP Newsletter

Topical Group on Statistical and Nonlinear Physics

<http://units.aps.org/units/gsnp>

Letter from the Chair



I hope everybody is having a good 2016 so far, and I look forward to seeing many of you at the March Meeting in Baltimore. I am finishing up my year as GSNP Chair, having served the prior two years as Vice Chair and Chair Elect.

GSNP's biggest activity is planning sessions at the March Meeting. This year's planning was led by Chair Elect Adilson Motter. GSNP bridges a variety of areas, among them statistical physics, nonlinear dynamics, networks, and has connections with many other areas of science including soft matter and biological physics. Accordingly, GSNP members proposed a variety of fascinating focus sessions and invited speakers, and Adilson worked hard to organize all of this. Here's a list of the invited sessions we are sponsoring and co-sponsoring this year:

- A4: Polymer Dynamics: An Honor Session for Sir Sam Edwards
- B2: The Edwards Statistical Mechanics
- C12: Intrinsic Localized Modes: Recent Developments and Future Perspectives
- F1: Pattern Formation
- F12: Climate Science Frontier: Cloud and Precipitation Physics
- K14: Extreme Mechanics: Topology in Mechanics
- L3 Buckley, Lillienfeld, and Onsager Prize Session
- R3: Glass and Jamming Transitions
- R14: Geometry and Mechanics of Folded Filaments, Writhing Ribbons and Braided Bundles
- S55: Inference in Biophysics
- V3: Complex Network Dynamics
- V55: DNA Physics and Chromatin Organization
- X55: Principles of Cell to Cell Communication
- Y12: Inference in Complex Networks

GSNP is also (co-)sponsoring 36 focus sessions, 17 contributed sessions, and one poster session. For the complete list, please see: <http://tinyurl.com/gsnp2016>

The GSNP Student Speaker Award Session features five student finalists (session F40, Tuesday 1:03pm, room 343, more details below). These are always outstanding talks and represent the broad variety of work being done by GSNP student members. I urge you to attend their talks.

Next year's March Meeting GSNP organization will be done by David Egolf. He'll send out information soon about planning for the 2017 meeting, and accordingly I encourage everybody to think of potential topics for sessions for next year. We rely on your high-quality proposals for these topics.

You are all invited to the GSNP business meeting Tuesday evening March 15, 5:45 - 6:45 pm in room 343 of the Convention Center, where we will, as always, provide tasty refreshments.

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At the business meeting, we will celebrate the five newest APS fellows coming from GSNP (listed below). The number of APS fellows that GSNP can sponsor is directly linked to our membership size. Each unit receives an annual quota that is roughly equal to 1/2 of 1% of its membership. This is another way that your GSNP membership is important: in addition to the honor the individual fellows have earned, this is a public way to recognize the outstanding work done in our various research areas. Information about the nomination process for choosing next year's fellows is below; the nomination deadline is May 30, 2016. Any comments or suggestions are most welcome, and both David Egolf (dae3@georgetown.edu) and Adilson Motter (motter@northwestern.edu) would be happy to hear from you about new ideas you may have for GSNP.

Please send announcements of relevant meetings to our incoming secretary/treasurer Chris Santangelo (csantang@physics.umass.edu); we will post them on our website and distribute via email to our members.

Thanks are due to Bulbul Chakraborty (Past Chair), Robin Selinger (Secretary/Treasurer), Luis A.N. Amaral (Member-at-Large), and Eli Ben Naim (Member-at-Large)—GSNP Executive Committee members whose terms are ending. A most special thanks goes to Robin Selinger, who served tirelessly and excellently for three years. She will be a hard act to follow!

Best wishes,

—Katja Lindenberg

Student Speaker Awards

GSNP sponsors a Student Speaker Award at the APS March Meeting. GSNP received 15 nominations, from which five finalists were chosen to speak in the award session. Members of the GSNP executive committee will select a winner at the meeting. The winner will receive a prize of \$1000 and each finalist will receive \$300. In addition, March meeting expenses up to \$500 will be covered for each finalist. This year's finalists are:

- Stephen DeCamp, Brandeis University
- Zachary Nicolaou, Cal Tech
- Melinda Varga, University of Notre Dame
- Yang Yang, Northwestern University
- Jorge G. T. Zanudo, The Pennsylvania State University

Hear them at the **Student Prize Session F40, Tuesday March 15, 1:03-2:03pm**, in room 343 at the end of the Leo Kadanoff Session II. Congratulations and good luck to all of the finalists!

GSNP Fall 2015 Election Results

Congratulations to the newly elected officers of GSNP!

Vice-Chair:

Greg Huber (University of California, Santa Barbara)

Secretary/Treasurer

Chris Santangelo (University of Massachusetts, Amherst)

Members-At-Large:

Laura Clarke (North Carolina State University)

Aparna Baskaran (Brandeis University)

Student Lunch with the Experts

Student Lunch with the Experts will be held Tuesday, March 15, 12:30 – 2 pm at the Baltimore Convention Center. GSNP is sponsoring two tables:

Aparna Baskaran, Brandeis University, will discuss "Statistical Physics of Active Matter,"

David J. Schwab, Northwestern University, will discuss "Collective Behavior in Biological Networks."

Students can sign up to join one of the experts and enjoy a complimentary box-lunch while participating in an informal discussion. Sign-up will open Sunday, March 13 at 3PM, near the APS Registration Desk in Hall D. Attendance is limited to eight students per table. A complete list of experts and discussion topics is available online at <http://www.aps.org/meetings/march/events/experts.cfm>.

GSNP Collaboration Zone

GSNP will host a cordoned-off seating area with four tables for the sole use of our members at the March Meeting. This "GSNP Collaboration Zone" will be located in the Camden Lobby of the Baltimore Convention Center and will be available for group discussions and meet-ups. Look for the GSNP Banner. More details to come!



New 2015 APS Fellows in the GSNP

Each year, the GSNP Fellowship Committee reviews nominations for APS Fellows 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 membership. This year, five candidates were recommended by GSNP and selected for Fellowship in the American Physical Society:

Kahng, Byungnam, Seoul National University

Citation: For contributions to understanding continuous and discontinuous transitions in percolation and their applications to memory devices, and work on fractality, random walks and spectral properties, avalanche dynamics, and synchronization in complex network

Pleimling, Michel, Virginia Polytechnic Institute

Citation: For seminal and sustained contributions to computational statistical physics, specifically his investigations of complex systems far from thermal equilibrium, and in-depth understanding of non-equilibrium relaxation and physical aging phenomena.

Schwartz, Ira, Naval Research Laboratory

Citation: For the pioneering contributions to the understanding and development of topological insights into the dynamics, fluctuations, and control of strongly nonlinear physical and population systems.

Silber, Mary, Northwestern University

Citation: For contributions to bifurcation theory in the presence of symmetries, and its application to the theory of pattern selection in nonlinear, spatially extended, dissipative physical systems.

Zapperi, Stefano, University of Milan

Citation: For key contributions to the understanding of statistical properties of crackling noise in materials, including the theory of the Barkhausen effects in ferromagnets and the understanding of dislocation avalanches in microplasticity.

2016 Fellow Nominations

APS Fellowship nomination instructions are outlined at <http://aps.org/programs/honors/fellowships/nominations.cfm>. The Fellowship Committee generally looks for sustained contributions to the field over a period of time rather than a single, even brilliant, piece of research. Supporting letters that provide specific details about the candidate's work, its impact, and the breadth of her/his contributions are particularly useful. Nominations are closed at the moment but a new online system will be available on the APS website in early 2016.

The nomination deadline for GSNP is May 30, 2016. Nominations on which no favorable action is taken are generally reconsidered the following year. Sponsors may, however, resubmit the nomination with updated supporting material prior to the deadline for the following year.

Special thanks to Uwe Tauber for chairing the 2015 Fellowship Committee.

Visit the GSNP Meetings page at <http://www.aps.org/units/gsnp/meetings/index.cfm>. This webpage contains links to upcoming events and conferences of interest to the statistical and nonlinear physics community.

Join the GSNP discussion group at LinkedIn here: <http://www.linkedin.com/groups?gid=5105028>

Considering that GSNP members analyze properties of social networks, it's imperative that we have one of our own. This LinkedIn group allows easy one-to-many communication among members of GSNP, e.g. to announce an upcoming event, post a link to a video of a new experiment or online talk, or just discuss research issues. All GSNP members are welcome to join the conversation.

GSNP Executive Committee 2016-2017

Chair:**Adilson E. Motter (03/16-02/17)**Northwestern University
motter@northwestern.edu**Chair Elect:****David Egolf (03/16-02/17)**Georgetown University
dae3@georgetown.edu**Vice Chair:****Greg Huber (03/16-02/17)**University of California, Santa Barbara
huber@kitp.ucsb.edu**Secretary-Treasurer:****Chris Santangelo (03/16-02/19)**UMass Amherst
csantang@physics.umass.edu**Past Chair:****Katja Lindenberg (03/16-02/17)**University of California San Diego
klindenberg@ucsd.edu**2017 March Meeting Program Committee Chair**

David Egolf

Members-at-Large:**Michelle Girvan (03/14-02/17)**

University of Maryland

Ben Vollmayr-Lee (03/14-02/17)

Bucknell University

Cynthia Reichhardt (03/15-02/18)

Los Alamos National Laboratory

Uwe Tauber (03/15-03/18)

Virginia Tech

Laura Clarke (3/16-3/19)

North Carolina State University

Aparna Baskaran (3/16-3/19)

Brandeis University