



GSNP Newsletter

Topical Group on Statistical and Nonlinear Physics

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

Letter from the Chair

Statistical and Nonlinear Physics is a unique field of physics, which combines a strong focus on fundamentals with vibrant connections to the life and materials sciences and engineering. With 942 members or 1.95% of the total APS membership, the Group on Statistical and Nonlinear Physics is one of the largest of the APS Topical Groups. One of our most important roles within the APS is to highlight new areas and to make connections between seemingly diverse topics in physics. As examples, last year the GSNP sponsored well-attended and thought-provoking March Meeting sessions on applications of statistical physics in biology, complex networks, and the elasticity of thin objects.

Most of the group’s activities occur at the APS March Meeting, where the GSNP sponsors Focus Sessions and Invited Symposia, often jointly with other units. Our Chair-Elect, Corey O’Hern, has assembled a strong and broad program of GSNP sessions (see p. 2) through his leadership of our March Meeting Program Committee. As always, we were dependent on the high quality proposals advanced by our membership to insure a strong program. Watch your e-mail this summer for details of the process for 2012 Focus Session and Symposium proposal submission.

All are invited to the GSNP Business Meeting
Tuesday, March 22
5:45 p.m. - 6:45 p.m.
Convention Center D227
Refreshments Provided

The GSNP sponsors a number of special events at the March Meeting. We sponsor a “Gallery of Images”, modeled after a similar exhibition started by the DFD. GSNP members are invited to submit a poster or video with visually striking and informative displays of statistical or nonlinear phenomena. Many of the submissions to the Image Gallery are published in the journal Chaos. There are also \$500 cash prizes for the winning entries for the best poster and for the best video.

A second GSNP-sponsored event is the Student Speaker Award Session (Session B14, Monday 11:15am, D227). Five students are selected annually to present in this special March Meeting session. The winner receives a cash prize of \$1000 and each of the other finalists receives \$300. The talks in these sessions have been excellent in the past few years, and we expect no less this year. Please consider attending!

We are also co-sponsoring the Heineman/Onsager/IUPAP-C10 Prize Symposium (Session A8, Monday 8:00am, Ballroom C4), in recognition of the awarding of the Dannie Heineman prize to Herbert Spohn, the Lars Onsager prize to Alexander Belavin, Alexander Polyakov, and Alexander Zamolodchikov, and the IUPAP-C10 Young Scientist prize to Marcos Rigol. The 2011 Maria Goeppert Mayer award winner, Reka Albert, will present her prize talk in a focus session on complex networks (Session Y14, Friday 8:00am, D227). Finally, the GSNP will sponsor a “Lunch with the Experts” that provides students the opportunity to meet with a GSNP expert (Eric Weeks this year) in an informal setting.

Another important role of the GSNP is to sponsor nominations for APS fellowships. The deadline is May 1, 2011 for 2011 fellowships—more details can be found on p. 3 of this newsletter or at <http://aps.org/programs/honors/fellowships/nominations.cfm>. Please consider nominating outstanding colleagues for this honor.

Any comments or suggestions for the GSNP are most welcome, and both Corey O’Hern and I would be happy to hear from you about new ideas you may have for the GSNP. Also, please send announcements of relevant meetings to our secretary/treasurer Jon Machta (machta@physics.umass.edu); we will post events of GSNP interest on our website.

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2011 Student Speaker Award Finalists

The GSNP sponsors a Student Speaker Award at the APS March Meeting. From nominated talks, GSNP chooses 5 finalists to speak in the award session. A committee selects a winner at the meeting. The winner will receive a cash prize of \$1000 and each finalist receives \$300.

The five finalists this year are:

- Nick Gravish, Georgia Tech
- Sahand Hormoz, Harvard University
- Tao Jia, Virginia Tech.
- Anton Souslov, University of Pennsylvania
- Zhenyu Wang, University of Illinois

They will speak at the **Student Prize Session B14, Monday 11:15am, D227**. Congratulations and good luck to all the finalists!

GSNP - Sponsored Contributed Sessions

B14 Applications of Statistical and Nonlinear Physics to Social Systems and GSNP Student Speaker Award Talks (GSNP) Monday 11:15am (D227)

D13 Statistical and Nonlinear Physics: General (GSNP) Monday 2:30pm (D225/226)

D14 Systems Far from Equilibrium (GSNP) Monday 2:30pm (D227)

Q13 Glassy Systems and Jamming I (GSNP/DFD) Wednesday 11:15am (D225/226)

V13 Glassy Systems and Jamming II (GSNP/DFD) Thursday 8:00am (D225/226)

W13 Applications of Statistical and Nonlinear Physics in the Life Sciences (GSNP/DBP) Thursday 11:15am (D225/226)

Y13 Granular Materials I (GSNP/DFD) Friday 8:00am (D225/226)

Z13 Granular Materials II (GSNP/DFD) Friday 11:15am (D225/226)

GSNP - Sponsored Focus Sessions

H13 Jamming Theory and Experiment I (GSNP) Tuesday 8:00am (Silbert; D225/226)

H14 Friction, Fracture, and Deformation across Length Scales I: Sliding Friction and Asperities (DMP/GSNP/DCOMP) Tuesday 8:00am (Marder, D227)

J13 Jamming Theory and Experiment II (GSNP) Tuesday 2:30pm (Shattuck; D225/226)

J14 Physics of Active Materials (GSNP) Tuesday 2:30pm (Rao, Risler; D227)

L13 Jamming Theory and Experiment III (GSNP) Tuesday 2:30pm (D225/226)

P14 Friction, Fracture, and Deformation across Length Scales II: Plasticity and Rupture (DMP/GSNP/DCOMP) Tuesday 8:00am (Greer, D227)

Q14 Extreme Mechanics: Elasticity and Deformation I (GSNP) Wednesday 11:15am (Grinspun, D227)

Q39 Information Processing in Biological Systems (GSNP/DBP) Wednesday 11:15am (Tu; A124/127)

T13 Transport and Diffusion in Non-Equilibrium Systems (GSNP) Wednesday 2:30pm (Leshner, Kumar; D225/226)

T14 Extreme Mechanics: Elasticity and Deformation II (GSNP) Wednesday 2:30pm (Vella, D227)

V14 Statistical Mechanics of Complex Networks (GSNP) Thursday 8:00am (Motter; D227)

W14 Extreme Mechanics: Elasticity and Deformation III (GSNP) Thursday 11:15am (D227)

X13 Continuum Description of Particulate Media (GSNP) Thursday 2:30pm (Zohdi, Bouchbinder; D225/226)

X14 Extreme Mechanics: Elasticity and Deformation IV (GSNP) Thursday 2:30pm (Xhao; D227)

Y14 Statistical Mechanics of Complex Networks II (GSNP) Friday 8:00am (Albert; D227)

GSNP - Sponsored Invited Symposia

D7 From Molecular Control to Spatiotemporal Patterns in Bacteria and Beyond (GSNP) Monday 2:30pm (Vergassola, Tailleur, Huang, Hwa, Be'er; Ballroom C3)

J7 The Dynamics of Co-Evolving and Interdependent Networks (DBP/GSNP) Tuesday 2:30pm (Havlin, Caldarelli, D'Souza, Binaconi, Hidalgo; Ballroom C3)

T7 Structural and Mechanical Properties of Jammed Amorphous Materials (GSNP) Wednesday 2:30pm (Dasgupta, Mailman, Sampangiraj, Manning, Shokef; Ballroom C3)

W4 Glassy Dynamics and Jamming (DCMP/GSNP) Thursday 11:15am (Biroli, Schall, Kurchan, Chen, Garrahan; Ballroom A4)

2011 Gallery of Images

We encourage submissions prior to Feb. 21 to the GSNP Gallery of Images, which will be displayed **Monday–Wednesday in the Exhibition Area**. Instructions can be found at <http://www.aps.org/units/gsnp/gallery/index.cfm>. A committee will select the top three images and an overall winner from each category (posters and videos). The winners will receive a \$500 cash award. All selected images will be published in a special issue of the journal Chaos.

Student Lunch with the Experts

Student Lunch with the Experts will be held Wednesday, March 23, 1:00 pm– 2:30 pm, at the convention center. GSNP is sponsoring the topic: *Soft Jammed Materials*, with Prof. Eric Weeks from Emory University. Students can sign up to enjoy a complimentary box-lunch while participating in an informal discussion with Prof. Weeks. Sign-up will begin on Monday, March 21, at 1pm at the APS registration desk. Attendance is limited to eight students.

New 2010 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. In 2010, five candidates were recommended by GSNP and selected for Fellowship in the American Physical Society:

Klein, William, Boston University

For seminal contributions in the physics of nucleation and phase transitions arising from fundamental advances in statistical, field-theoretic techniques, and their application to general mean-field systems

Kudrolli, Arshad, Clark University

For his innovative experiments and significant contributions to nonlinear physics, dissipative systems, granular matter, and geomorphology

Middleton, A. Alan, Syracuse University

For his innovative numerical studies of the dynamical and static properties of disordered condensed matter systems, including charge density waves, spin glasses, and disordered elastic media

Tang, Lei-Han, Hong Kong Baptist University

For his pioneering contributions to statistical physics, especially in equilibrium and non-equilibrium critical phenomena and soft matter

Van Vliet, Carlyne, University of Miami

For seminal contributions to the foundations of Linear Response Theory and to quantum transport involving extended or localized states, with applications to condensed matter problems

GSNP Fall 2010 Election Results

Congratulations to the newly elected officers of GSNP:

Vice-Chair:

Eric Weeks (Emory University)

Members-at-large:

Michael Falk (Johns Hopkins University)

Christian Santangelo (University of Massachusetts Amherst)

New GSNP officers are elected in the fall of each year, with terms beginning in March of the following year. The duties and terms of service for these positions are detailed in the Bylaws of the GSNP (<http://www.aps.org/units/gsnp/governance/bylaws.cfm>). Balloting is done over the web.

2011 Fellow Nominations

Nominators must ensure that the case they prepare for the Fellowship Committee is well documented, following the guidelines and requirements outlined at <http://aps.org/programs/honors/fellowships/nominations.cfm>. In general, the Fellowship Committee looks for sustained contributions to the field over a period of time rather than a single, even brilliant, piece of research. Supporting letters which provide specific details about the candidate's work, its impact, and the breadth of her/his contributions are particularly useful.

Nominations may be made at any time during the year, but only those received by the GSNP deadline, currently May 1, 2011, will be considered for action in the same year. Nominations are submitted online at <http://www.aps.org/programs/honors/fellowships/>.

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 go to Sue Coppersmith for chairing the 2010 Fellowship Committee.

Please 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.

GSNP Executive Committee 2010-2011

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Corey O'Hern

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