



# GSNP Newsletter

## Topical Group on Statistical and Nonlinear Physics

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

### Letter from the Chair

The Topical Group on Statistical and Nonlinear Physics (GSNP) turns 11 years old this year and membership has been growing steadily. With nearly 950 members, the GSNP is one of the largest of the APS Topical Groups. An achievable goal for the foreseeable future is to become a Division of the APS.

The GSNP brings together researchers from a wide spectrum of phenomena, that ranges from fluid dynamics, biological physics, computational physics, to condensed-matter and polymer physics. The GSNP has its roots in equilibrium statistical physics, but has evolved to encompass nonequilibrium and dynamical phenomena. An important mission of the GSNP has been to highlight new areas and to make connections between seemingly diverse topics within the GSNP umbrella. As examples, last year the GSNP sponsored fascinating sessions on locomotion in complex fluids, the elasticity of thin objects, and the dynamics of rare events.

**All are invited to the GSNP Business Meeting**  
Tuesday, March 17  
5:45 p.m. - 6:45 p.m.  
David L. Lawrence Convention Center,  
Room 303

Most of the group’s activities occur at the APS March Meeting, where the GSNP sponsors Focus Sessions and Invited Symposia, often in conjunction with other units (see p. 2 for this year’s list). I am indebted to our Chair Elect, Beate Schmittmann, for her splendid job in chairing the 2009 March Meeting Program Committee that organized the GSNP sessions this year. There is also significant GSNP representation at the annual DFD November meeting.

The GSNP sponsors several exciting special events at the March Meeting. The first is the “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. Some of the submissions to the Image Gallery are published in the journal Chaos. There is also a \$500 cash prize for the winning entry for the best poster and for the best video.

A second, and more recent, GSNP-sponsored event is the Student Speaker Award Session (Session B9, Monday at 11:15am). Five students are selected annually from nominations submitted by GSNP members to present in this special March Meeting session. The winner receives a cash prize of \$1000 and each of the finalists receives \$300. The talks in these sessions have uniformly been excellent in the past few years, and should again be enjoyable this year. Please consider attending! Finally, the GSNP sponsors a “Lunch with the Experts” that provides students the opportunity to meet with a GSNP expert (Royce Zia this year) in an informal and friendly setting.

Any comments or suggestions for the GSNP are most welcome and I would be happy to hear from about new ideas you may have for the GSNP. Also, please send announcements of relevant meetings to our secretary/treasurer Arshad Kudrolli (akudrolli@clarku.edu); we will post events of GSNP interest on our website.

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## 2009 Student Speaker Award Finalists

The GSNP sponsors the 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:

- Natalie Arkus, Harvard University
- Kipton Barros, Boston University
- Tom Haxton, University of Pennsylvania
- Jordan Horowitz, University of Maryland
- Mya Warren, University of British Columbia

They will speak at the **Student Prize Session B9, Monday 11:15AM, Room 303.**

Congratulations and good luck to all the finalists!

## 2009 Gallery of Images

The GSNP Gallery of Images is now in its sixth year. Submitted posters and video entries will be displayed **Monday– Wednesday in Exhibit Hall A.** They can also be viewed 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, with a brief commentary, in a special issue of the journal *Chaos*.

## Student Lunch with the Experts

Wednesday, March 12, 1:00 pm– 2:30 pm, level 2 concourse of the convention center.

GSNP is sponsoring the topic: *Physics far from Equilibrium: Challenges and Opportunities*, Prof. R.K.P. Zia, Virginia Tech.

Students can sign up to enjoy a complimentary box-lunch while participating in an informal discussion with Prof. Zia. Sign-up will begin on Monday, March 10 at the APS registration desk. Attendance is limited to eight students.

## GSNP - Sponsored Contributed Sessions (Room 303, except Q15 in 316)

**A9** Systems far from Equilibrium I (GSNP) Monday 8:00am–11:00am

**B9** Student Award Session/Applications of Statistical and Nonlinear Physics in the Life Sciences (GSNP) Monday 11:15am–2:15pm

**D9** Elasticity and Geometry of Thin Objects I (GSNP) Monday 2:30pm–5:30pm

**H9** Complex Networks and Their Application (GSNP) Tuesday, 8:00am–11:00am

**P9** Jamming: Theory and Experiment I (GSNP) Wednesday 8:00am–11:00am

**Q15** General Topics in Statistical Physics and Applications to Social Systems (GSNP) **Room 316** Wednesday 11:15am–2:15pm

**W9** Systems far from Equilibrium III (GSNP) Thursday 11:15am–2:15pm

**Y9** Stochastic Processes in Biological Systems II (GSNP) Friday 8:00am–11:00am

**Z9** Nonlinear Dynamics and Chaotic Systems (GSNP) Friday 11:15am–2:15pm

## GSNP - Sponsored Focus Sessions (Room 303)

**J9** Elasticity and Geometry of Thin Objects II (GSNP) Tuesday 11:15am–2:15pm (M. Brenner)

**L9** Systems far from Equilibrium II (GSNP/DBP) Tuesday, 2:30pm–5:30pm (D. ben-Avraham)

**Q9** Dynamics of Glassy Systems (GSNP) Wednesday 11:15am–2:15pm (M. Wyart)

**T9** Stochastic Processes in Biological Systems (GSNP) Wednesday 2:30pm–5:30pm (T. Chou)

**V9** Structure and Dynamics of Complex Networks (GSNP) Thursday 8:00am–11:00am (Z. Toroczkai)

**X9** Jamming: Theory and Experiment II (GSNP) Thursday 3:30pm– 5:30pm (B. Utter)

## GSNP - Sponsored Invited Symposia (Room 407, except X5 in 401/402)

**D7** Rare Events in Physics and Population Dynamics (GSNP), Monday 2:30pm (Stein, Täuber, Schwartz, Stone, Buks)

**J7** Complex Cellular Biological Networks (GSNP/DBP) Tuesday 11:15am (Maslov, Motter, Reed, Hawoong, Albert)

**T7** Pattern on Thin Elastic Sheets (GSNP/DPOLY) Wednesday 2:30pm, (Liang, Sharon, Menon, Lee, Huang)

**X5** Active Soft Matter: From Granular Rods to Flocks to Living Cells (GSNP) Thursday 2:30pm, **Room 401/402**  
(Kudrolli, Giardina, Baskaran, Koenderink, Safran)

**Y7** The Statistical Properties of Forces in Jammed Granular Matter (GSNP/DCMP) Friday 8:00am  
(Behringer, Tighe, Henkes, Corwin, Schröter)

## New 2009 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. Therefore, the selection process is quite competitive, and sponsors should be aware of this when preparing nominations. In 2008, three candidates were recommended by GSNP and selected for Fellowship in the American Physical Society:

### **Luca Biferale** *University Tor Vergata*

Citation: *For his original applications of multifractal concepts, numerical simulations, and models to obtain insight into the dynamics of fully developed turbulence.*

### **Theo Geisel** *Max Planck Institute*

Citation: *For pioneering and sustained contribution to our understanding of transport in classical and quantum chaotic dynamical systems, and for applying this understanding to a broad range of real-world problems.*

### **Alessandro Vespignani** *Indiana University*

Citation: *For his contribution to the statistical physics of complex networks, in particular his seminal work on the spreading of viruses in real networks.*

## GSNP Election Results

Congratulations to the newly elected officers of GSNP:

Vice-Chair:

Corey O'Hern (Yale University)

Members-at-large:

Greg Huber (University of Connecticut Health Center)

Wendy Zhang (University of Chicago).

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/bylaws.cfm>). Balloting is done by e-mail. The results of the 2008 elections are now available.

## 2010 Fellow Nominations

Nominators must ensure that the case they prepare for the Fellowship Committee is well documented. Information such as complete publication list, lists of invited talks, awards, committee service, and organization of conferences is very helpful. Reprints of papers are generally not useful. A detailed statement, discussing the candidate's "exceptional contributions" can aid the committee considerably. In general, the Fellowship Committee looks for sustained contributions to the field over a period of time rather than a single, albeit brilliant, piece of research. Supporting letters evaluating the candidate's work are particularly useful.

Nominations may be made at any time during the year, but only those received by the GSNP deadline, currently April 1, 2009 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 to Thomas Halsey for chairing the 2008-2009 Fellowship Committee.

**Please visit the GSNP Events page** at <http://units.aps.org/units/gsnp/events.cfm>

This webpage contains a list of upcoming events and conferences of interest to the statistical and nonlinear physics community.

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## GSNP Executive Committee 2008—2009

### Chair:

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### 2009 March Meeting Program Committee

Beate Schmittmann

### 2008-2009 Fellowship Committee

Thomas Halsey

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