

AMERICAN PHYSICAL SOCIETY
New England Section Newsletter

Volume 18 Number 1 Spring 2012

Paul H. Carr & Laurence I. Gould, Co-Editors

Spring Meeting of New England AAPT

April 27/28 2012 at Thayer Academy

Space Science and the Future of Space Exploration

Concurrent with Massachusetts Physics Olympics

Featured Speakers Include

David Latham: Planet hunter

Remote talk by Robert C. Hilborn, Associate Executive Officer
American Association of Physics Teachers

Jonathan McDowell

Eric Silver

Workshops: PTRA Workshops on Dark Matter with Marti Lyons and Laura Nickerson

Workshop with David Pritchard

Call for Presenters: Click [here](#) to submit an abstract for a poster or oral presentation [if the call is not closed]

Click here for the agenda and here for the Poster (and <http://aapt-nes.org/spring-meeting/> for **Directions to Thayer Academy**)

— **No APS meeting this Spring. A Fall APS meeting is being planned.** —

**Fall 2011 Joint Meeting of the New England Sections of the APS and AAPT
with participation of the SPS**



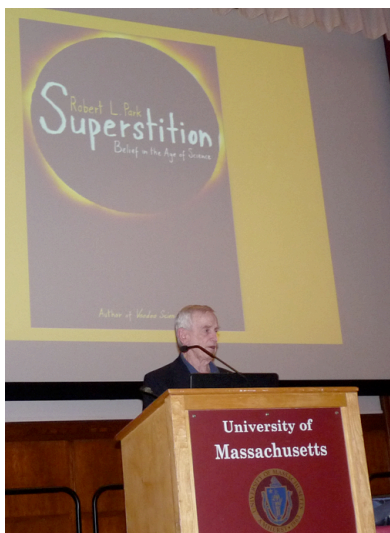
Climate Change and the Future of Nuclear Power

November 18-19, 2011

University of Massachusetts Amherst

Amherst, Massachusetts

This year marks the 100th anniversary of Rutherford's discovery of the nucleus. He said it would be "moonshine" to think that we would ever be able to extract energy from the nucleus. But now nuclear power plants provide 15% of the electricity in the world without emitting greenhouse gases as do fossil fuel fired plants. But how will the Fukushima nuclear power plant disaster, and Germany's decision to drop nuclear power after 2022, affect the future of nuclear power? Are there new designs and procedures that will ensure safe operation? These are among the questions that will be addressed at this meeting.



The banquet speaker was Bob Park of the University of Maryland, the author of the weekly news/editorial column “**What’s New.**” His topic was “The Only Way of Knowing: As of today there are 7 billion people on this planet; according to the wireless industry 5 billion of them have cell phones. It’s possible to call anyone on Earth with a 2-ounce pocket mobile. The knowledge behind this politically-powerful technology did not come from sacred texts or government offices. In theory, the public learns from the media. The media is not a reliable source.” Speaker Abstracts and information may be found at <http://blogs.umass.edu/nes2011>

GLOBAL WARMING DEBATE SUMMARY



Paul Carr (left) and Larry Gould in front of the latter’s poster

Paul H. Carr, Ph. D., debated with Prof. Laurence I. (“Larry”) Gould on Saturday, Nov 19, 2011 at the New England Section of the American Physical Society Meeting at the University of Massachusetts at Amherst.

Dr. Carr's PowerPoint talk was entitled, Data Supporting Anthropogenic Global Warming: Balancing Economics and Ecology. It is available on his web page <http://mirrorofnature.org/GlobalWarmingDebateNESAPS.pdf> (It might take 15 seconds to download.)

Prof. Laurence I. Gould's talk was Anthropogenic “Global Warming” — Illuminating some of its Scientific and Methodological Flaws. Many of the PowerPoint slides he used for the debate can be found by clicking on the item GOULD PRESENTATION on his web page <http://uhaweb.hartford.edu/lgould/>.

Dr. Carr's talk references included:

(1) Atmospheric CO₂: Principal Control Knob Governing Earth's Temperature; Andrew A. Lacis *et al.*, *Science*, **330**, 356-359, 15 October 2010
http://pubs.giss.nasa.gov/docs/2010/2010_Lacis_etal.pdf

(2) Reconciling Anthropogenic Climate Change with Observed Temperature 1998–2008. Robert K. Kaufmann *et al.*, *Proc. National Academy of Sciences* 2011
<http://www.pnas.org/content/early/2011/06/27/1102467108>

Prof. Gould's talk references included:

(1) *Climate Change Reconsidered: The 2009 Report Of The Nongovernmental International Panel On Climate Change* <http://www.nipccreport.org/> [most research references there are from peer-reviewed science journals]

(2) *Taken By Storm: The Troubled Science, Policy, And Politics of Global Warming* Christopher Essex & Ross McKittrick (Key Porter Books, 2008) [an introduction to the subject]

NES APS CONFERENCE REPORTS
Report on the October 2011 Greater Boston Area
Statistical Mechanics meeting
Brandeis University

(communicated by Harvey Gould, Clark University)

About 70 people attended the 13th annual Greater Boston Area Statistical Mechanics meeting on Saturday, October 15, 2011 at Brandeis University. The main goal of these meetings is to offer an informal and supportive environment where people from a variety of departments and institutions can meet and exchange ideas. In addition, our goal is to give students a venue where they can discuss their work with more senior scientists. The tradition of the meeting is to invite speakers who have recently embarked on their independent research careers, speakers who are new to the Boston area, or more senior people whose research deserves greater recognition among people working in statistical mechanics.

The invited speakers for this year's meeting were

- Aparna Baskaran, Brandeis University, "Dynamics and pattern formation in active fluids."
- Andrew Strominger, Harvard University, "Black holes: The harmonic oscillators of the 21st century."
- Marta González, MIT, "Analytical model and measurements of aggregated mobility networks."

The fourth invited speaker had to cancel at the last minute due to a medical problem.

There were 35 contributed talks on topics ranging from biological systems, basketball, spin glasses, to granular matter. All the contributed talks were given on a single laptop computer, and contributors were asked to save their talks as pdf files so that the talks would be platform independent. The contributed talks were much better than in the early years of the meeting; the presentations contained an appropriate level of detail for a three-minute talk, and almost every speaker finished his or her presentation within the allotted 3 minutes without intervention by the chair. More information about the meeting, including titles of the contributed talks and previous meetings, can be found at physics.clarku.edu/gbasml/.

Attendance at the meetings has been in the range 75–85. Last year we broke all records with over 100 people in attendance. We do not know if scheduling the meeting last year on Columbus Day weekend contributed to the greater attendance, but the fact that Yom Kippur occurred on Columbus Day weekend in 2011 year precluded testing that hypothesis.

It is good that people have interpreted the "greater Boston area" to extend from Maine to Connecticut and New York. Institutions represented included American Scientist Magazine, BAE Systems, Boston College, Boston University, Brandeis University, Clark University, Gordon College, Harvard University, Husson University, Massachusetts College of Pharmacy, MEARS Technologies, MIT, Northeastern University, Rensselaer Polytechnic Institute, Saint Anselm College, UMass Amherst, UMass Boston, University of California Riverside, University of Connecticut Health Care Center, University of Maryland, and Yale University. There were approximately 44 graduate students, 15 post-docs, 12 faculty members, and 4 people from industry in attendance. The number of graduate students and post-docs has remained roughly constant, but the number of senior faculty members has declined somewhat.

The meeting has been subsidized by the New England Section of the APS for the past 13 years at a cost of approximately \$10 per person for bagels, coffee, and lunch (sandwiches). As a result, organizing the meeting has been straightforward. Registration is done using a web-based form.

The meeting is open to anyone, including non-members of the APS and NES, but non-members are encouraged to join both. The NES would like to encourage meetings of this type in the New England area and would welcome requests for financial assistance. The main criteria are that the meeting be open to all, widely announced, and make an effort to involve people who are not necessarily experts in the field. Requests for subsidies for student attendance are particularly welcome.

The organizers of this fall's meeting were Bulbul Chakraborty, Claudio Chamon, Harvey Gould, Michael Hagan, Greg Huber, Bill Klein, and Sidney Redner.

NES APS LOCAL NEWS

Undergrad senior publishes in Astrophysical Journal: Jeremy Bradford, a senior undergraduate Physics major at Central Connecticut State University (CCSU), has recently published a first author paper in the prestigious Astrophysical Journal (Bradford et al. 2011). Over the past year, Bradford has been conducting research with Dr. Marla Geha, assistant professor in the Astronomy Department at Yale University, on the galactic globular cluster Palomar 13. Their goal was to evaluate whether Palomar 13 contains a significant amount of dark matter or is being tidally disrupted. Through collaboration with other prominent researchers (Ricardo Muñoz and Filipe Santana of the Universidad de Chile, Josh Simon of The Observatories of the Carnegie Institution of Washington, Patrick Côté and Peter Stetson of the Herzberg Institute of Astrophysics and Evan Kirby and George Djorgovski of Caltech), Bradford found that the cluster's velocity dispersion was inflated by variable stars and that neither a dark matter component nor extreme tidal heating is necessary to explain the cluster's dynamics. The paper, titled "Structure and Dynamics of the Globular Cluster Palomar 13" will appear in the December issue of the Astrophysical Journal.

Laser Radar at Central Connecticut State University (CCSU): CCSU has built an innovative teaching and research facility for laser radar studies. Laser radar, also called lidar (an acronym for Light Detection And Ranging), is a growing research area in which laser light scattering is used to determine target parameters of interest. At CCSU, lidar research is being conducted in laser radar instrument design and in lidar studies of atmospheric structure and aerosols. Instrument development studies focus on optimization of optical characteristics of remote sensing instrumentation for low altitude aerosol studies. CCSU lidar atmospheric studies transmit laser light pulses vertically up into the atmosphere. A detector then collects the portion of the light which is scattered towards the detector by air molecules, aerosols and clouds, and data are analyzed to provide information on atmospheric properties as a function of altitude. Dr. Nimmi Sharma, Professor of Physics in the CCSU Department of Physics and Earth Sciences is the principal investigator on these projects. With support from the university and the National Science Foundation, CCSU now has a climate-controlled mobile lidar laboratory which houses two different lidar systems and a suite of additional atmospheric instruments. The first system is a monostatic elastic backscatter Micro Pulse Lidar system of the type used in NASA's global lidar network, MPLnet. The system is eyesafe and offers continuous data on atmospheric structure, cloud and aerosol properties. The second system is a bistatic lidar system called the CLidar system, designed and developed in collaboration with Dr. John Barnes at the National Oceanic and Atmospheric Administration. The CLidar system uses a CCD camera and wide angle optics to image the laser beam from the side. The CLidar system has excellent resolution in the low altitude atmospheric boundary layer and provides data all the way to the ground. The facility is being used for upper level laboratory teaching and for student and faculty research. As the facility is mobile, there are opportunities for collaboration with others in the New England area. Interested parties may contact Dr. Sharma at sharmanim@ccsu.edu.

April 7, 2012

Letter to APS Members who are not NES Members

As Chair of the New England Section of the American Physical Society, I write to request that you consider becoming a member of the Section. If you are already a member of APS, joining the section does not cost you anything. It is especially simple if you are NOT a life-member of the APS. Please go to the web link:

<https://www.aps.org/aps-login/profile.cfm?backurl=%2Fmemb> , log in and under membership, add the NES as a new Unit you would like to join. If you are a life-member, the APS requires that you go to a little extra trouble of calling the following number: 301-209-3280 or emailing membership@aps.org. We appreciate your taking a few minutes to join the section. It is of great benefit to the Section, and I hope in some of the ways I describe below, to you.

The main activity of the Section has been organizing two meetings a year (in different locations and with a wide range of themes), encouraging and supporting students to attend and present papers and posters at these meetings. **These meetings are usually held jointly with the New England Section of the AAPT.** In addition, we send out a Newsletter twice a year and support other physics meetings in the region. (We are moving to a solely electronic version of the Newsletter and are suspending some of the support to other meetings). The income that supports these activities is from a per-member contribution that the national body (APS) provides us. The cost of the meetings has skyrocketed, mainly because the charges from host institutions and because of increasing travel and local hospitality expenses for the invited speakers. We have typically not paid honoraria to invited speakers and tried where possible to combine the visit of speakers to our meetings with visits to local institutions so that some of this cost could be reduced. We will do our best, going forward, to make the meetings self-financing. However, these costs cannot always be predicted or controlled precisely, and the Section, not the host institution, is responsible for the expenses. Your joining the Section will help our, soon-to-be-precarious, financial situation.

A larger benefit to all of us from an increased membership is the viability, and we hope continued vitality, of the New England Section of the APS.

Kannan Jagannathan
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EDITORIALS and LETTERS TO THE EDITORS

Please Note: The content of what follows expresses each writer's considered opinion and should not be construed as representing any official position of any organization, including the Executive Board of the New England Section of the American Physical Society.

The issue of anthropogenic global warming (AGW) is not settled. This can be seen from the Letter below as well as contributions to the debate existing in recent publications of this Newsletter (Fall 2007 through Fall 2011 issues). These can be obtained from the NES APS website <http://www.aps.org/units/nes/newsletters/>.

Given the importance of the topic, we welcome letters (positive or negative) about these issues or on any other issues. Examples might be: (1) Message from the Chair, (2) Interesting topics from NES APS institutions (such as new hires or new programs), (3) Message from the Nominating Committee Chair about positions to be filled on the Executive Board, or (4) Recent Executive Committee highlights. The Newsletter is published twice yearly (Fall and Spring).

Paul Carr and Larry Gould, Co-Editors
NES APS Newsletter

Larry Gould — Editorial Comments plus other Contributions

The "Global Warming"/"Climate Change" controversy continues —

E-mail LETTER from Riccardo DeSalvo that was sent to *Physics Today*

Prof. Riccardo DeSalvo

University of Sannio, Benevento, Italy

I am disturbed by the articles by Sherwood on science controversies and by Sommerville-Hassol on communication in science. [*Physics Today* **64**, 10 (2011)]

Both articles are nominally about outreach and the relationship between science and public, but both make unwarranted assumptions about global warming, portraying them as "incontrovertibly" (as the APS likes to say) human-generated, while basing their conclusions on some sort of "consensus", or majority logic. They seek to dismiss opposition to these assumptions by turning the tables on that opposition by characterizing it as scientific orthodoxy, when it is actually they who represent orthodoxy. In fact there is a major ongoing scientific

debate on the magnitude of the human contribution to climate change. Articles like these make it more difficult for this scientific debate to continue in reasonably objective terms.

I would like to remind the authors that Copernicus, and even more so Galileo Galilei (whose alma mater I share), were worse than a suppressed minority. They were virtually isolated, physically threatened, and their evidence ignored or dismissed. And yet in the end they were proved right because they rejected the authoritarianism of consensus, basing their deductions strictly on empirical evidence and logic. Obviously not every scientific minority will be proved right in the long run, but the scientific method must be allowed to determine the outcome.

This is why nearly 300 physicists have petitioned for an independent, objective APS assessment of global warming science and why they support an apolitical science-based activity in the form of an APS Topical Group. Articles such those by Sherwood and Somerville-Hassol damage the prospects for serious scientific discussion and debate.

Editorial Comments: The above letter by Professor DeSalvo was acknowledged but not printed by Physics Today. It is reprinted here with Professor DeSalvo's permission.

I wonder what the "consensus" advocates would have said about that young upstart who dared to question the veracity of Newtonian mechanics (I'm referring, of course, to Einstein), or of Barry Marshall and Robin Warren who dared to question the belief that peptic ulcers were caused by stress

http://www.slate.com/blogs/thewrongstuff/2010/09/09/stress_doesn_t_cause_ulcers_or_how_to_win_a_nobel_prize_in_one_easy_lesson_barry_marshall_on_being_right.html

or of Daniel Shechtman who dared to argue for his discovery of a "forbidden" symmetry in crystals

http://www.nobelprize.org/nobel_prizes/chemistry/laureates/2011/popular-chemistryprize2011.pdf

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