NewsLetter

The New Jersey Academy of Science

Rutgers University, Beck Hall, Room 215, 99 Avenue E, Piscataway, NJ 08854-8040
Volume 37, Number 1 **Winter Issue 2005**

50TH ANNUAL MEETING

SATURDAY, APRIL 2, 2005

NEW JERSEY INSTITUTE OF TECHNOLOGY

The 50th Annual Meeting of the New Jersey Academy of Science will be held on Saturday, April 2, 2005 on the campus of New Jersey Institute of Technology in Newark. Dr. Michael Baltrush (baltrush@adm.njit.edu) will be the Chairperson of the Science Program and the Local Coordinator. The Junior and Senior Academies will meet together, and as in the past, there will be both paper and poster presentations.

The Senior Academy pre-registration form is included in this NewsLetter and can also be found on our website at www.njas.org. Registration fees for the Senior Academy meeting are $20.00 for members, and $10.00 for graduate and undergraduate students. The abstract form for Senior Academy presentations is included in this NewsLetter and is also on our website. All abstracts must be submitted in both electronic and paper form. The electronic submission should be sent as an attachment to baltrush@adm.njit.edu. The paper submission should be sent directly to the NJAS at the address at the top of this NewsLetter. Senior Academy abstracts and the abstract fee of $15 along with the registration fee must be received by March 18, 2005 to be included at the Annual Meeting.

Junior Academy (High School Students) can obtain pre-registration and abstract forms from their science teachers or on our website. Junior Academy registration fees will be $10.00 for members and $5.00 for family and guests. Deadline for pre-registration is March 18, 2005. All abstracts must be submitted in both electronic and paper form. Full instructions for abstract preparation are also on our website.

All presenters must be academy members and must be pre-registered by the above date in order to present at the meeting.

WISE YOUNG, M.D., PH.D.

TO BE KEYNOTE SPEAKER AT

NJAS ANNUAL MEETING

Dr. Young is Chairman of the Department of Cell Biology and Neuroscience at Rutgers University. He founded the W. M. Keck Center for Collaborative Neuroscience and holds a joint appointment in the Department of Neurosurgery at the University of Medicine and Dentistry of New Jersey. Dr Young is also the Co-Director of the New Jersey Stem Cell Institute at the UMDNJ-Robert Wood Johnson Medical School.

Dr. Young studies mechanisms and treatments of central nervous system injury, with an emphasis on spinal cord injury. In the 1980's, he led the research team that discovered and established the beneficial effects of early high-dose methylprednisolone (a synthetic glucocorticoid) in human spinal cord injury. His current research focuses on neuroprotective, regenerative, and remyelinative therapies of spinal cord injury; the role of neurotransmitter receptors regulating excitability, growth, and branching of axons; identification and understanding of injury-induced gene expression regulating cell growth, proliferation, and apoptosis. Dr. Young's goal is to discover, test, and develop practical therapies of brain and spinal cord injury focusing on four therapeutic targets: neuroprotection, optimizing function of surviving axons, remyelination, and regeneration. He and his students are identifying and characterizing myelination-associated genes, neuroprotective-associated genes, pain-associated genes, and regeneration-associated genes in the spinal cord.

Directions to New Jersey Institute of Technology are available on the NJIT website: www.njit.edu/about/visiting/index.php. This site also includes a campus map.

PRESIDENT'S CORNER

WHERE IS EVERYONE?

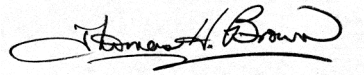
Struggling to blend an optimistic outlook with a growing sense of urgency and panic has plagued me for several weeks as I have worked on this update. I find myself the current representative of an organization celebrating its 50th birthday. I also find myself the current President that is ready to yell "fire" in a crowded room!

To get a sense of the past, I went to the historical record left in 50 years of NewsLetters and Bulletins. In those 50 years, I learned the Academy developed ostensibly because of a few devoted souls with seemingly endless energy and a passion for science, students, and learning. It was not a smooth growth and in the early years, activities were suspended more than once due to a lack of members willing to get involved. Unfortunately, as the old adage goes, history does seem to repeat itself. Your Academy in 2005 is facing the same critical situation. We need members willing to stand up and get involved. Put bluntly, the Academy is in trouble.

When I first became involved with the Academy, I envisioned a group of learned scientists, academicians, inventors, and educators meeting together to further the efforts of science in New Jersey. Well, the potential is here...the Research Universities, Institutes, Centers of Excellence, Foundations, and noted laboratories are all here in NJ. Many are world-renowned. The number of Fortune 500 companies with substantial research budgets in NJ is unparalleled. The credentials of those working in all these places are first rate. Our state is in the forefront of dynamic research, experimentation, and invention in multiple scientific areas. So where is everyone? Why is our membership today **half** of what it was 15 or 20 years ago?

On April 2, 2005, hosted by NJIT, we will hold the 50th Annual Meeting of the NJ Academy of Science. All members are invited to attend, observe, and make a commitment to get involved, or renew an old commitment. Come to the student competitions; attend the poster sessions; network with other professionals; meet the young scientists of tomorrow! While you are there, seek out an executive committee member and tell them you want to help with an Academy activity this year. Please!

Our keynote speaker this year is Dr. Wise Young, a world-renowned researcher, professor, and Director of the W M Keck Center for Collaborative Neuroscience at Rutgers University. Dr. Young is one of the world's top neuroscientists and it is without a doubt that his message will be innovative, stimulating, and challenging. DON'T MISS IT!



Thomas H. Brown, President

DOES STUDENTS' MATH PROFICIENCY ADD UP?

(Source: USA TODAY, November 18, 2004)

The math skills of the nation's public school students have risen steadily for more than a decade, but a new study suggests that the progress may not be as significant as it seems. A close look at questions on the widely given National Assessment of Educational Progress, or NAEP, math test shows that many items focus on concepts that students should have learned years earlier, says researcher Tom Loveless of the Brookings Institution's Brown Center on Education. "Yes, they're making gains, but they're making gains in trivial mathematics," he says. For instance, 90.7% of the problem-solving arithmetic items on the eighth-grade NAEP involve concepts commonly taught in fifth grade or earlier. A few observers say the study ignores the ongoing changes to NAEP. Given periodically to thousands of students nationwide, NAEP has become a key barometer used by educators and policymakers to judge the basic skills of U.S. students. Since the 1990s, scores have risen rapidly. In fact, fourth-graders last year scored high enough to nearly match the skill level of sixth-graders in 1990. But Loveless, who pulled publicly released items from NAEP's website, says the test is "completely dominated" by questions involving whole numbers, suggesting that students are "probably not sophisticated at all in their proficiency."

Sharif Shakrani, a mathematician and deputy executive director of the National Assessment Governing Board, which develops NAEP, says Loveless concentrated on a special test that focuses on long-term data, one that has "more direct computational items" that test basic arithmetic. He says the NAEP that most students take is more wide-ranging, "much more sophisticated and more difficult than the long-term trend (NAEP), which has not changed over the last 30 years." The annual Brookings report also criticizes the training that most middle-school math teachers receive, saying it should focus more on subject-area knowledge and less on teaching methods and state standards. It also says school districts should focus on training the one-fourth of teachers who badly need content-area help. National Council of Teachers of Mathematics president Cathy Seeley agrees with that finding, adding that the council has recommended "extended study" for particular content areas. But she says teachers also need training in teaching methods. "I think it's a matter of survival that we don't send them into the classroom unarmed for helping students learn."

For more information on the National Assessment of Educational Progress, visit http://nces.ed.gov/nationsreportcard.)

SCIENCE TEACHER WORKSHOP TO BE HELD AT ANNUAL MEETING

At its Annual Meeting on April 2, the New Jersey Academy of Science will host a half-day workshop on **Research/Inquiry-Based Projects for High School Science Students.** This half-day workshop (9:00 to 12:00 A.M.) will provide high school science teachers with several approaches for developing research/inquiry-based learning programs at their schools. Teachers already engaged in such projects will explain how to get started and the strengths and weaknesses of this approach to learning science. Classroom tested teaching materials will be provided. At the same location, high school students from around the state who are engaged in research projects will present their results both orally and as posters. Workshop attendees will have an opportunity to view these projects. The workshop will constitute three (3) Continuing Education Units (CEU). Cost for the workshop is $10 in addition to the $5 Annual Meeting Registration Fee. To guarantee a spot pre-registration for the meeting and workshop is recommended. On site registration will be available if space permits. The necessary pre-registration form can be found and printed at Teacher Registration at the Annual Meeting link of the Academy's web site www.njas.org

DID YOU KNOW THAT…

Thomas Edison came up with the idea of movies from watching someone sneeze in 1888? He was looking at still sequential pictures of someone sneezing, and realized that if you viewed them quickly in a sequence, that you might be able to make a movie.

MAGIC RULES FOR GIVING AN ILLUSTRATED TALK

By David Pearson, Ph.D., Biology Department, California State University at Los Angeles

It should not be very difficult to organize yourself to communicate effectively if you have the following...

1. A good idea of how your work fits into the "big picture" of a major scientific research program. In other words,
    - Why is it important?
    - A definition of what you were attempting to investigate.
    - Define your project.
2. Knowledge of the methods you used and why you used them.
3. A clear description of your findings, even if (as is often the case) the work is incomplete.

PUTTING IT TOGETHER

1. Start planning early.
2. Gather your references, lab book, other data, scratch paper, and writing tool. Sit in a quiet place with a large surface so you can spread your materials.
3. Make a rough outline with a few words or statements under each heading. At each point, make a note of the visuals you might want to use. You might want to include quick sketches of the visuals. Introduction and, background- Here you include the "big picture" information and define your project.
4. Methods- how did you proceed? Conclusions: What does the above mean? Why is it important? What will happen next?
5. Acknowledgments: It is always better to give too much credit to those who helped you than not enough.
6. Take the outline to your mentor and let her/him critique it. Come to an agreement on what should be included.
7. When you have decided what to present, refine the outline. Do not write the talk out word for word: the best talks usually come from the briefest outlines.
8. Prepare your visuals.
9. Practice, practice, practice:
    - Go into a room alone with your outline and your visuals.
    - Stand.
    - Decide on an opening sentence or two and memorize them.
    - Speak aloud even though no one can hear you.
    - Stop and start over as often as necessary to make it sound right. Practice using your visuals as you talk.
    - Use a pointer to direct attention precisely.
    - If necessary, decide what to eliminate to pare your talk down to the required length.
    - Practice the talk until you are comfortable with it.
    - Finally, work with audiences such as science classes, science club, teachers, mentors, and family who will listen and give you feedback on your presentation.

A FEW SPECIAL THINGS TO REMEMBER:

1. *Voice:* Do not shout, but do speak up and project.
2. *Eye contact:* Try to establish individual eye contact with as many people as possible.
3. *Body language:* Stand straight; smile; move around a little; have a good time.
4. *Pointer:* Remember to use it effectively.
5. *Audience questions:* It is great if you know the answer; if you do not, do not fake it. Just say, "I don't know."
6. *Visuals:* Place 2 x 2 slides correctly into your carousel so they do not project upside down! Transparencies should have simple diagrams/outlines.

PRESENTING IT:

1. Establish yourself as a person with your audience before you have the lights turned off and start showing slides.
2. Neither write out your talk word for word nor memorize it.
3. Use effective graphics.
4. Do not try to impress anyone with how much you know by using scientific jargon or many technical terms, especially if you have not clearly defined them.
5. DO NOT PANIC! Look out at the audience; take one more slow, deep breath and SMILE before you say a word.

"EVERYTHING ELSE WILL TAKE CARE OF ITSELF." D. Pearson

NATIONAL EDUCATIONAL TECHNOLOGY EDUCATION PLAN RELEASED

U.S. Secretary of Education Rod Paige has unveiled a national vision outlining how effective use of technology can impact student achievement. "Toward a New Golden Age in American Education: How the Internet, the Law and Today's Students Are Revolutionizing Expectations" establishes a strategy to support the effective use of technology to improve student academic achievement and prepare students for the 21st century. This is the nation's third such plan, which focuses on signs of progress in core subjects, benefits from reforms stimulated by the bipartisan No Child Left Behind Act, and the success of innovative new approaches to learning through advances in educational technology. It also profiles today's students and includes a sampling of the views and recommendations of more than 200,000 students in all 50 states. The plan provides an opportunity to reflect on the progress our nation has made as a result of a decade of increased federal, state, local, and private investments in connecting classrooms to the Internet, providing students with computers, and equipping teachers with the skills they need to use technology as an instructional tool.

According to the report, the technology that has so dramatically changed the world outside our schools is now changing the learning and teaching environment within them. This change is driven by an increasingly competitive global economy and the students themselves, who are "born and comfortable in the age of the Internet." In many states, the explosive growth of online instruction and virtual schools is already complementing traditional instruction with high-quality courses tailored to the needs of individual students, the report said. At least 15 states provide some form of virtual schooling to supplement regular classes or provide for special needs, and about 25 percent of all K-12 public schools now offer some form of e-learning or virtual school instruction. The report includes numerous details of successful initiatives and partnerships developed at the state level by school districts and by individual schools. It concludes with a series of recommendations for enhancing the use and benefits of new technologies, and places them within the context of long-term, systemic transformation, covering such issues as leadership, management, teacher training, and funding. For more information, visit www.nationaledtechplan.org.

JASON FOUNDATION FOR EDUCATION WINS TECHNOLOGY & LEARNING AWARD

The Technology & Learning magazine 2004 Award of Excellence has been presented to the JASON Foundation for Education, a provider of experience-based science and math curriculum and professional learning for grades 4-9. The JASON XV: Rainforests at the Crossroads curriculum was honored as an outstanding leader of curriculum products that breaks new ground in the market of education. Competing against more than 140 highly qualified applicants, JASON XV: Rainforests at the Crossroads, was chosen because of the program's innovative and interactive take on learning. Members of the education community and editors of Technology & Learning magazine conducted over 30 hours of extensive product testing during several rounds of judging. Ease of use, quality, effectiveness, creative use of technology, and suitability for the school environment were some of the judging criteria.

Founded in 1989, JASON uses multi-media tools and access to some of the nation's leading scientists to combine genuine scientific expeditions around the world, standards-based classroom curriculum, and accredited professional learning for teachers, to deliver real adventures in learning and measurable gains in student achievement. In 2004, JASON Student and Teacher Argonauts joined scientists and researchers in an exploration of the Isthmus of Panama region and its tropical rainforests. JASON XV: Rainforests at the Crossroads focuses on the research, monitoring, and management of this region. The program looks at how technology has influenced the geography, hydrology, and biology of Panama and how it is used to better understand the interchange between the Earth's dynamic systems. For more information on the JASON Foundation for Education, visit www.jason.org.

DID YOU KNOW THAT...

antlers are made of bone and are shed and regrown each year, while horns are made of keratin and are grown for life? However, the pronghorn antelope sheds its horns every year

Application For Membership

Dr., Miss, Ms., Mrs., Mr. (Please Circle One)

Last Name:_____ First Name: _____ MI. _____

Organization/Ed. Unit:_____

Mailing Address:_____

_____

Phone: _____ Fax: _____ E-mail:_____

Professional Field(s): _____

Educational Level (circle one): high school undergraduate graduate faculty

Signature: _____

Please check type of annual membership:

_____Regular Member $ 35.00 **_____Student Member $ 15.00**

_____*Life* Member (1 payment) $250.00 **_____Retired/Emeritus $ 15.00**

_____

2005 Senior Academy Preregistration
Must Be Received By March 18, 2005

Dr., Miss, Ms., Mrs., Mr. (Please Circle One)

Last Name: _____ First Name: _____

Organization/Ed. Unit:_____

Mailing Address:_____

Phone: _____ Fax:_____ E-mail: _____

General Meeting Registration Fee:

____Member	$20	_____Abstract Fee	$15
____Graduate Student Member	$10	_____Lunch	$10
____Undergraduate Student Member	$10	_____HS Teacher Workshop	$10
____High School Teacher	$ 5	_____Non Member	$25

Make checks payable to: New Jersey Academy of Science

Send the application and fees to: NEW JERSEY ACADEMY OF SCIENCE
Rutgers University
Beck Hall, Room 215
99 Avenue E
Piscataway, New Jersey 08854-8040

NJAS Annual Meeting Saturday April 2, 2005
Abstract Form for Oral/Poster Presentations
Senior Academy 2005 Annual Meeting Abstract Form

Please follow these instructions (improperly prepared abstracts or missing information may cause rejection of your abstract):

1. This year we will not be accepting any abstracts that are not submitted in both electronic and paper form. The preferred format is MSWord, Arial font, size 10, fully justified. RTF format is also acceptable. Abstracts sent via an attachment to an e-mail message are preferred and should be submitted to Dr. Michael Baltrush at baltrush@adm.njit.edu or mab@cis.njit.edu, but floppy disks/CD-ROM are also acceptable.
2. The abstract should be approximately 200 words long, excluding title, author and affiliation information.
3. Type the title in bold and all capitals, except for scientific names.
4. Start authors with the first author.
5. Underline the name of the presenting author. If the presenting author is a student, type (student) after the presenter's name.
6. Leave a blank line before the text.

Example of typical abstract:

SYNTHESIS AND IDENTIFICATION OF TERPENYL ETHERS - A COOPERATIVE COLLEGIATE-INDUSTRY PRODUCT

Thomas Gilligo (student), Paul S. Cohen, Chemistry Department, The College of New Jersey, Trenton, NJ 08625 and Mark Pavlin, Union Camp Corporation, Princeton, NJ.

A series of terpenyl ethers was synthesized and analyzed for purity and structure. The ethers were submitted for aroma quality evaluation…

7. Please complete the **ABSTRACT SUBMISSION FORM**: (see below)
8. **Mail one paper copy of this form, one paper copy of the abstract, plus $15 Abstract Fee, Meeting Registration Fee of $20 Regular Member or $10 Student Member, Appropriate NJAS Membership Fee of either $35 for Regular Member or $15 for Student Member and $10 Lunch Fees to: New Jersey Academy of Science, Rutgers University, Beck Hall, Room 215, 99 Avenue E, Piscataway, NJ 08854-8040. Phone/ Fax: 732/463-0511. All questions about payment should be directed to this address.**
9. Mail another paper copy of this form, another paper copy of the abstract, and the electronic copy of the abstract to Dr. Michael Baltrush. E-mail: baltrush@adm.njit.edu or mab@cis.njit.edu.
10. **All abstracts and abstract fees MUST be received by March 18, 2005 to be guaranteed a room assignment. THIS IS A FIRM DEADLINE!!! In order to have the printed programs ready for the meeting, late submissions CANNOT be accepted for any reason!!!**

You will be notified by e-mail after the abstract has been received, and again after the presentation time has been established.

Abstract Submission Check List

Abstract in correct format
Abstract submitted
    Hard Copy and electronic copy to Dr. Baltrush
    Hard Copy with registration and abstract fees to NJAS Office
Authors Identified Correctly
Presentation type completed
Student Author Information completed
Instructional Media needs completed
Presentation Category completed

NJAS Senior Academy Abstract Submission Form

Submit in writing (hard paper copy) and electronic format to:
Dr. Mike Baltrush, NJAS 2005 Meeting
Computer Science Department
New Jersey Institute of Technology
University Heights
Newark, NJ 07102
baltrush@adm.njit.edu or mab@cis.njit.edu

Author presenting paper (MUST BE A NJAS MEMBER):

Name: _____

Mailing Address: _____

Phone _____Fax: _____E-mail: _____

If the presenting author is a **student**, should the presentation be evaluated for a best student oral presentation award? _____ yes _____ no

Student Presenter _____ Graduate _____ Undergraduate

The Presentation will be: _____ Oral _____ Poster

Oral presentations last a total of 15 minutes, including time for questions. A slide projector and overhead projector will be available in each room**. If you need an LCD Projector (e.g., Power Point Presentation) we have limited numbers available and appreciate it if you might be able to bring one from your University. If insufficient LCD projectors are unavailable, Authors will need to present using overheads.**

Instructional Media Needs for Oral Papers:

_____Overhead Projector _____Slide Projector _____LCD Projector

If you need an LCD Projector Please Indicate below:

_____ I will bring one from my University ___ I will need one supplied

For posters, 6' long tables will be provided. Posters will be placed in a general meeting area for display. All posters must be self-supporting. Posters are usually displayed during the entire day.

Please indicate your first and second choices for sessions (note: to keep the program balanced and ensure an audience for each presentation, some reassignment of papers may be necessary).

___Archaeology/Anthropology	___Ecology/Environmental Science	___Nursing
___Biochemistry	___Geology	___Physics/Astronomy
___Biology	___Marine Science	___Psychology
___Chemistry	___Microbiology	___Science Education
___Computer Science/ Mathematics	___Neurobiology	___Other_____

Abstract (Follow Example, 200 Word Limit)

THE BULLETIN: CALL FOR MANUSCRIPTS

Individuals seeking publication of their work are urged to consider submitting their manuscripts to *The Bulletin*, The peer-reviewed journal of the New Jersey Academy of Science. We are currently on a twice-yearly publication schedule, which consists of a spring and a fall issue.

Original papers and reviews in any field of science are considered for publication. Manuscripts should be submitted to Dr. Michael Kennish, Editor, Institute for Marine & Coastal Sciences, Rutgers University, 71 Dudley Rd. New Brunswick, NJ 08901. Instructions for contributors are printed on the inside back cover of each issue of *The Bulletin* and are now available on the NJAS website (www.NJAS.org), in the Bulletin section. Anyone having questions about the review and/or publication process should contact the editor at (732) 932-6555, ext. 240 or kennish@imcs.rutgers.edu.

NEW JERSEY ACADEMY OF SCIENCE: MEMBERSHIP

The New Jersey Academy of Science is a private, non-profit, scientific and educational organization of scientists and others interested in science. The purpose of the academy is to stimulate education and research in science throughout New Jersey. Membership in NJAS

NJAS, Rutgers University
Beck Hall, Room 215
99 Avenue E
Piscataway, NJ 08854-8040