



THE VOYAGER

YOUR VEHICLE TO STELLAR OPPORTUNITIES

The New sletter for COSMOS Alumni - November/December 2004 - Volume I, Issue 2

COSMOS Participants Take Center Stage at 2004 California Nobel Laureate Dinner

On Monday, November 15th, the University of California Office of the President (UCOP) and the Consulate General of Sweden hosted the 2004 California Nobel Laureate Dinner at the Getty Center in Los Angeles.

Celebrating the 5th Anniversary of the California Summer School for Mathematics and Science (COSMOS), the event adopted the theme "Incubating Tomorrow's Nobel Laureates." Corporate sponsors, program administrators, former COSMOS participants, and

several California Nobel Laureates attended.

(see Nobel on Page 2)



The Getty Center is renowned for its architecture as well as its museum

COSMOS Advisory Board Meeting Held in Los Angeles

Seeking to build stronger relationships with high school administrators, teachers and educational leaders in Los Angeles, the COSMOS leadership met in at the California Science Center on October 14th.

Prior to the meeting, Gayle Wilson, Former California First Lady and Chair of the COSMOS Board,

and Irene Bronston, Coordinator of COSMOS at UC Office of the President were accompanied by Kenneth Phillips, Ph.D., Curator of the Aerospace Science Center to the provocative Body Worlds exhibit from Germany.

After the Board meeting, the COSMOS leadership and Mrs. Wilson hosted *(see Advisory on page 4)*



Megan Banker (UCSC COSMOS) and her father at the California Science Center

Body Worlds: The Anatomical Exhibit of Real Human Bodies



More than 15 million people worldwide have viewed the Body Worlds exhibit

Body Worlds is unlike any exhibition that has ever been displayed before. It's about anatomy, physiology, and human health. The exhibit explores the very essence of bodily performance at a depth never before possible on such a comprehensive scale.

Thanks to the breakthrough process of plastination, more than 200 real human specimens are

displayed to reveal the complexity and elegance of the nature inside the human body.

Explore the wonders of the authentic brain that guides us, the organs and muscles that propel us, the skeleton that supports us. See how disease develops and learn how lifestyle choices affect good health and well-being.

The exhibit can stir profound emotions as *(see Body on page 2)*

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JOHN NASH ARTICLE (CONT'D)

COSMOS ALUMNI NETWORK - STATEMENT OF PURPOSE

The COSMOS Alumni Network is dedicated to supporting the educational and career aspirations of COSMOS program alumni. To achieve this goal, the network promotes activities that will help prepare students for college and future careers, highlights opportunities for students to engage in educational or work-related experiences, and fosters ties to other participants and the COSMOS program. The COSMOS Alumni Network is committed to spotlighting programs that will enhance COSMOS participant college preparedness and interest in pursuing courses of study and careers in math, engineering, or science related fields.

Nobel (continued from page 1)

Ira Flatow, host of National Public Radio's "Science Friday" served as the Master of Ceremonies.

Participants from all three COSMOS campuses presented a poster board on their latest ventures in mathematics and science. Presenters took center stage at the reception, providing COSMOS students the opportunity to share their understanding of advanced math and science concepts with the world's greatest minds. After the reception, COSMOS participants and their parents joined the attendees for dinner and keynote address by Nobel Laureate, Louis J. Ignarro, Ph.D.

John Nash: Genius, Nobel Laureate, and Schizophrenic

<http://www.popular-science.net/nobel/nash.html>

For many years, students and scholars in Princeton have seen a ghostly, silent figure shuffling around the corridors of the math and physics building wearing purple sneakers and occasionally writing numerology treatises on the blackboards. They called

Body (continued from page 1)

you cross bridges to your own humanity. More than 15 million people have viewed Body Worlds in cities throughout Europe and Asia, making it the most successful touring exhibition ever.

Now, the exhibit has arrived in the Americas, beginning with its

Free SAT and ACT Preparation!

<http://www.ucop.edu/news/archives/2002/oct28art1.htm>

All students in California can now get free online preparation for tests like the SAT and the ACT on a University of California-sponsored Web site. Interactive online test prep courses are being made available free of charge on the California Virtual High School Web page at <http://www.cavhs.org>.

The courses feature user-friendly tutorials, practice sessions that dynamically adapt to each student's ability and a vocabulary builder with more than 2,000 words. Students may also select a parent or teacher as a "coach" to mentor them during the test prep process.

"This is the latest effort to level the playing field for students," said Francisco J. Hernandez, executive director of the University of California's College Preparatory Initiative (UCCP) and vice chancellor for student affairs at UC Santa Cruz. "The University of California doesn't want financial limitations to put students at a disadvantage, so we are making these courses available to all students. These materials use a series of tutorials, practice sessions and vocabulary drills to help students reinforce the academic skills tested by the SAT and ACT."

him the "Phantom of Fine Hall." The Phantom was John Nash, one of the most brilliant mathematicians of his generation. When the young Nash applied to graduate school at Princeton in 1948, his old Carnegie Tech professor, R.J. Duffin, wrote only one line on his

letter of recommendation: "This man is a genius." At the age of 21, Nash wrote a 27-page dissertation, "Non-Cooperative Games." The impact of his research was enormous and had a number of applications.

It was at (see Nash on page 4)

only scheduled West Coast stop, at the California Science Center in Los Angeles.

The Body Worlds exhibit will undoubtedly take your breath away. If you are in the Los Angeles area or plan on visiting soon, consider visiting the California Science

Center before the exhibit closes its doors on January 23rd.

Admission to the California Science Center is free, but Body World tickets are \$9.50 for students. For more information, call (213) 744-7540 or visit www.californiasciencecenter.org.

BioGENEius Challenge

The prestigious Aventis International BioGENEius Challenge is an annual event for high school students who demonstrate exemplary understanding of biotechnology through science research. The competition models the research process.

Just like scientists working in industry, universities, and research institutions, students are required to submit a project out-

line describing their proposed research to a scientific evaluation committee. Students whose projects are approved receive



up to \$200 in funding to help pay for equipment, supplies, and other costs.

The BioGENEius Challenge offers monetary awards for win-

ners. All students and schools participating in the BioGENEius competitions receive Certificates of Merit.

To be eligible to participate, students must be enrolled in biology or science courses (Grade 9 to 12) at a public or private school. An individual student or team of no more than three students may submit no more than one project. The project (*see Challenge page 4*)

Research Mentorship Program at UC Santa Barbara

The Research Mentorship Program provides a unique opportunity for students to experience the process and activities of academic discovery, leading to the most recently discovered facts at the forefront of research. The program offers six weeks of intellectual, hands-on immersion in the professional lives



of researchers working in the humanities, arts, social, life and physical sciences.

Enthusiastic and serious high school students are invited to join University of California Santa Barbara graduate students and their principal investigators as they carry out cutting edge research in field, laboratory and library settings.

The program aims to serve highly motivated high school students interested in helping to conduct academic research. Participants enroll in two University of California Santa Barbara interdisciplinary courses, which provide academic credit.

Students select research projects they desire to work on and are assigned research mentors.

Over the course of the program, participants will work in the lab, library and/or in the field, and be guided in research techniques, learning how to collect and analyze data, and how to write a research paper. By the end of the program, students will have completed a research paper, and during the final week each research group will present their findings at a scientific symposium, open to the public.

In addition, there are many other activities associated with the (*see Research on page 4*)

National Youth Leadership Forum on Technology

The National Youth Leadership Forum on Technology is an annual 10-day program that brings together gifted high school students with top-level educators and industry professionals from institutions like Apple, Cisco, Dell, IBM, Intel, Lockheed Martin, Motorola, Oracle, Silicon Graphics and Sun Microsystems.

Students actively participate in an integrated curriculum that

encompasses both group work and individual interests. Participants engage in workshops, product demonstrations, campus visits and tech-industry encounters, as they also take part in animated debate and discussion. Many former participants have already become a dynamic part of the industry - writing software, building system networks, managing web hosting companies and developing the

next generation of cutting-edge technology.

Throughout the program, students work to develop solutions to real-world dilemmas using facilitated methods of research and feasibility. They select a problem, and working together they identify current and future technologies, before developing an efficient and innovative solution to the dilemma.

(*see NYLF on page 4*)

NYLF (cont'd from page 3)

Participants must have a minimum 3.3 grade point average or above and expect to graduate from high school in 2006 or 2007. To request an application or get more information, contact the Office of Admissions at tech_adm@nylf.org or visit their website at <http://www.nylf.org/tech/index.cfm>.

Research (cont'd from page 3)

Research Mentorship Program. These change from year to year, and may include field trips to the Channel Islands just off the coast of Santa Barbara and/or trips to various research, aquaculture, medical and technological facilities in Santa Barbara and the surrounding areas.

Other activities include special lectures on a variety of pertinent

Nash (continued from page 2)

Princeton that Nash encountered the theory of games, a topic of study by John von Neumann and Oskar Morgenstern. However, they had only managed to solve non-cooperative games in the case of "pure rivalries" (i.e. zero-sum). The young Nash turned to rivalries with mutual gain.

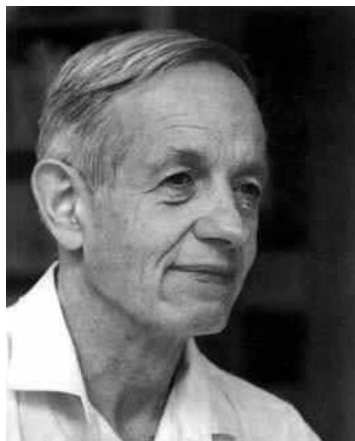
His main result, the "Nash Equilibrium," was published in 1950 in the Proceedings of the National Academy of Sciences. He followed this up with a paper which introduced yet another solution concept - this time for two-person cooperative games - the "Nash Bargaining Solution" (NBS) in 1950.

A 1951 paper attached his name to yet another side of economics - this time, the "Nash Programme," reflecting his methodological call for the reduction of all cooperative games into a non-cooperative framework.

Advisory (cont'd from page 1)

a reception for local educators at the Bamboo Roof Garden at the Center where three COSMOS 2004 alumni (Megan Banker, Aaron Jackson, and Ari Berlin) displayed their scientific posters and PowerPoint presentations of research projects they had undertaken this past summer.

social and scientific topics. During Friday afternoon class meetings, students share information about progress in their research, expanding everyone's scientific horizons. Students may participate in a field trip to a nearby beach to see the nighttime grunion runs and join searches for bioluminescent organisms.



Nash is one of this century's most notable mathematicians. He became a MIT professor at 29 but fell ill shortly thereafter.

His contributions to mathematics were no less remarkable. Nash continued to provide breakthrough after breakthrough in mathematics.

In 1958, on the threshold of his career, Nash was struck with paranoid schizophrenia. He lost his job at the Massachusetts Institute of Technology (MIT) in 1959 (he had been tenured there in 1958

Challenge (cont'd from page 3)

outline must describe the objective, materials and methods, interpretation and relevant application of the project.

Applications must be received by February 21, 2005. Project guidelines are available on the website. For more information and an application, visit <http://www.biotechinstitute.org/biogene.html>

The UCSB Research Mentorship Program runs from June 20 through July 29, 2005. Applications are due May 27th, 2005. Visit <http://www.summer.ucsb.edu/rmp.html> or call (805) 893-8950 and (805) 893-3215 for further details, applications, eligibility requirements, and program contact information.

- at the age of 29) and was virtually incapacitated by the disease for the next two decades. He roamed about Europe and America, finally, returning to Princeton where he became a sad, ghostly character on the campus - "the Phantom of Fine Hall."

When the Nobel Prize committee began debating a prize for game theory, Nash's name inevitably came up - only to be initially dismissed, since they worried about awarding the prize to someone who was mentally ill. But in 1994 Nash, in remission from schizophrenia, was recognized for his work done some 45 years previously. He shared the prestigious Nobel prize with John C. Harsanyi and Reinhard Selten - for what he claims was his "most trivial work".

The book and movie titled "A Beautiful Mind" document the accomplishments and trials of John Nash.