



NSBRI Explorer

National Space Biomedical Research Institute • August 2009

Bolden Appointed NASA Administrator

Major General Charles F. Bolden, Jr., (USMC retired), an NSBRI Board member since 2005, took the helm as NASA's 12th Administrator on July 17. Nominated by President Obama in May, the veteran of four space flights appeared before the U.S. Senate Commerce, Science and Transportation Committee during confirmation hearings on July 8.

In his prepared remarks at the hearing, Bolden emphasized the importance of committing to the following challenges: building upon the investment in the International Space Station; accelerating the development of a next generation launch system and human carrier; enhancing NASA's capability and expertise to provide scientific, technological and engineering leadership to help better understand Earth's environment; and, inspiring the next generation of students to pursue the fields of science, technology, engineering and math.

"Major General Bolden is an ardent supporter of human space flight," said Bobby R. Alford, M.D., NSBRI CEO and Chairman of the Board. "We will miss his wise counsel on our Board but know that he will be a strong leader for NASA."

Bolden has been on the organizing committee of the annual International Space Medicine Summit led by Alford and George Abbey, former NASA Johnson Space Center Director. ♦

Summer Internship Program Expands to NASA Glenn

Eighteen students are getting first-hand exposure to the human space program through NSBRI internships this summer at two NASA Centers. The highly competitive program added student opportunities at Glenn Research Center this year. ([News Release](#))

What started as a small program in 1998 with two student placements at Johnson Space Center has grown to a highly competitive program. This year, applications increased by 51 percent. Since the program's inception, 117 students have participated.

NSBRI interns work for 10-15 weeks on research activities under the supervision of NASA scientists and physicians who serve as mentors. The internship program's online application will be available beginning Oct. 1. Applications for next year's program are due Jan. 31, 2010. ♦

Earth Benefits of Space Research Showcased on Capitol Hill

NSBRI showcased its science, technology and education progress at the U.S. Capitol Visitor Center on March 25. The event highlighted the Earth benefits of NSBRI's work addressing health and medical barriers to long-duration space exploration. Approximately 100 guests attended, including Congressional committee members and staff, leadership from NASA and other research agencies, and NSBRI's Board of Directors.

"We rolled out our wares, showing space deliverables with Earth-based applications," said Jeffrey P. Sutton, M.D., Ph.D., NSBRI Director.

The interactive exhibits featured 12 of NSBRI's nearly 60 projects. Topics included ultrasound to assess bone health, noninvasive sensors for trauma care, ultrasound training to expand medical care, lighting to combat sleep loss and shift work problems, objective measurements of stress and fatigue, real-time radiation risk assessment, self-guided behavioral health tools, and educational materials for schools. ♦

Commercialization Workshop: Moving Products to the Marketplace

Scientist or entrepreneur? How do you learn to be good at both? NSBRI's Industry Forum held a Commercialization Workshop May 28 with the goal of helping NSBRI investigators master the "ins and outs" of bringing promising medical technologies to the healthcare marketplace.

"We hope the end result will be a faster transition of medical technology for space travel to patient care on Earth," said Dorit Donoviel, Ph.D., NSBRI Senior Scientist and Industry Forum Executive Secretary.

A group of NSBRI scientists and physicians attended the meeting which made use of Houston's strong community base of technology and biomedical entrepreneurship expertise. Featured speakers included venture capital leaders, lawyers and medical device innovators, who shared their expertise in moving innovative technologies to the marketplace. Topics addressed entrepreneur lessons learned, intellectual property protection, licensing and business development. The lectures and slides will be compiled and made available on NSBRI's Web site in the coming months. ♦

Chiao Serving on Review of U.S. Human Space Flight Plans Committee

The Obama Administration announced in May that it would launch an independent review of the planned U.S. human space flight activities with the goal of ensuring that the nation is on a vigorous and sustainable path to achieving its boldest aspirations in space.

Leroy Chiao, Ph.D., NSBRI User Panel Chair, is an appointed member of the Review of the U.S. Human Space Flight Plans Committee. Chiao is a veteran of four space flights and served as Commander and NASA Science Officer of Expedition 10 aboard the International Space Station.

The Committee is chaired by Norman Augustine, retired chairman and CEO of Lockheed Martin Corp. The panel is examining ongoing and planned NASA development activities and potential alternatives in order to present options for advancing a safe, innovative, affordable and sustainable human space flight program following space shuttle retirement.

As they assess the options, the members will work closely with NASA and will seek input from Congress and the White House, as well as the public, industry and international partners.

Public meetings were held in June, July and August. The Committee will present its results by the end of August to the White House Office of Science and Technology Policy Director and the NASA Administrator. ♦

Joint NASA/NSBRI Solicitation

Research Announcement NNJ09ZSA002N jointly solicits proposals for NASA and NSBRI in support of the Human Research Program. Step-1 proposals are due Sept. 3, and invited Step-2 proposals are due Dec. 3. NSBRI is soliciting proposals in the areas of Cardiovascular Alterations and Smart Medical Systems and Technology. The complete solicitation is available on the [NSPIRES](#) site.

Recent Publications

Bandstra ER, Thompson RW, Nelson GA, Willey JS, Judex S, Cairns MA, Benton ER, Vazquez ME, Carson JA, Bateman TA. Musculoskeletal changes in mice from 20-50 cGy of simulated galactic cosmic rays. *Radiat Res.* 2009 Jul;172(1):21-9. (Musculoskeletal Alterations Team) ♦

Dean DA 2nd, Forger DB, Klerman EB. Taking the lag out of jet lag through model-based schedule design. *PLoS Comput Biol.* 2009 Jun;5(6):e1000418. (Human Factors and Performance Team) ♦

Khokhlova TD, Canney MS, Lee D, Marro KI, Crum LA, Khokhlova VA, Bailey MR. Magnetic resonance imaging of boiling induced by high intensity focused ultrasound. *J Acoust Soc Am.* 2009 Apr;125(4):2420-31. (Smart Medical Systems and Technology Team) ♦

Mulavara AP, Cohen HS, Bloomberg JJ. Critical features of training that facilitate adaptive generalization of over ground locomotion. *Gait Posture.* 2009 Feb;29(2):242-8. (Sensorimotor Adaptation Team) ♦

Sinclair D, Oberdoerffer P. The ageing epigenome: Damaged beyond repair? *Ageing Res Rev.* 2009 Jul;8(3):189-98. (Postdoctoral Fellow – Radiation Effects Team) ♦

Strangman GE, Zhang Q, Zeffi T. Near-infrared neuroimaging with NinPy. *Frontiers Neuro Info.* 2009 May;3:Article 12:1-13. (Neurobehavioral and Psychosocial Factors Team) ♦

Accolades

David F. Dinges, Ph.D., Neurobehavioral and Psychosocial Factors Team Leader (Professor, University of Pennsylvania School of Medicine), received the 2009 Raymond F. Longacre Award from the Aerospace Medical Association for Outstanding Accomplishment in the Psychological and Psychiatric Aspects of Aerospace Medicine. In addition to other achievements, the award recognized him for significant contributions to aviation safety through development of the Psychomotor Vigilance Test (PVT), which has become a scientific standard for assessing the effect of sleep loss and fatigue on human performance. Data provided by the PVT have been used to develop mathematical models to improve work schedules in aviation, space, the military, transportation industries and other shift-working occupations.

Marlene Y. MacLeish, Ed.D., Senior Education Fellow (Professor, Morehouse School of Medicine), delivered the commencement address at Brescia University College. ♦

Calendar Update

NSBRI Board of Directors Meeting
September 17, Houston

NSBRI External Advisory Council Meeting
October 8-9, Houston ♦

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