10th Annual Science & Engineering Technology Conference/DoD Tech Exposition

April 21-23, 2009
Embassy Suites Hotel/Convention Center
Charleston, SC
Event 9720

"Creating Capability Surprise Through Innovative S&T and Operational Prototyping"

NDIA Science and Engineering Technology Division Mission

The mission of the Science and Engineering Technology Division of NDIA is to examine various research and development issues affecting national defense. In pursuing this mission, the Science and Engineering Technology Division will provide a forum for discussion of the nation's defense needs by examining our existing capabilities and suggesting appropriate measures to overcome deficiencies in defense research and development. An important part of this activity is the opportunity for individuals from industry, government and academia to examine vital information in open forum on technical needs and planned efforts. The division will be dedicated to conducting conferences that foster an increased interest in meeting the Department of Defense technology requirements by creative research and advanced development throughout industry, government and academia.

Conference Co-Chairs:
Colonel Jocelyn M. Seng, USAFR, Ph.D., Mobilization Assistant to the Deputy Assistant Secretary (Acquisition Integration)

Colonel Mark Stephen, USAF (Ret)
Vice President, Strategic Planning and Business Development, L-3 Coleman Aerospace

Science and Technology (S&T) advancements are key enablers for the onset of DoD system development. New technology can support the achievement of new capabilities to fill gaps identified through intelligence, testing and military operations. While essential to maintain awareness of emerging threats, it is also time to increase the focus on offense by delivering truly game changing capabilities which increase our advantage by overwhelming potential adversaries and forcing defensive reaction to U.S. warfighting capabilities. Additionally, with countering terrorism being a top priority for the DoD, game-changing capabilities are needed to deal with irregular warfare. S&T advancements provide opportunities to create capability surprise; however, it often takes a decade or more to get that technology into the hands of the war fighters. Operational prototyping provides hope for creating a streamlined technology transition and acquisition process.

Speakers from government, industry and universities will present their views on accomplishments and successes in applying innovative technology across the life cycle of DoD systems. Speakers will be available in the "Speakers Corner" after each session. This year, the conference will again feature poster paper sessions with authors available for discussion and interaction on emerging concepts and technology. There will also be opportunities for industry and academia to present ideas to Service representatives in one-on-one sessions.

TUESDAY, APRIL 21, 2009

7:00 AM **Conference Registration and Continental Breakfast - (Sign-up for one-on-one sessions begins)**

8:00 AM **Welcoming Remarks**
Major General Barry D. Bates, USA (Ret), VP Operations, NDIA

Mr. James Chew, Vice President, Science & Technology, ATK
S&ET Division Chair

8:15 AM **Preliminary Session: Opportunities for Collaboration**
Chair:
Mr. Robert W. Baker, Deputy Director, Plans & Programs, ODDR&E

In this session we will present Strategic Imperatives that provide focus for the investment of the DoD S&T program. Specific programs that provide conference attendees opportunities to engage in collaborative efforts with the DoD S&T community will also be highlighted. Presentations will provide information on technology areas of high interest to the DoD, time lines and points of contact for the submission of proposals. Opportunities for both industry and academia will be covered. A wide range of programs, from the larger technology demonstrations funded by the Joint Capability Technology Demonstration program that lead to the evaluation of military utility of advanced technology by a Combatant Commander; to the more focused technology development efforts that are funded by the Test & Evaluation/ Science & Technology (T&E/S&T) program will be covered. Opportunities for proposing commercial off-the-shelf technology to meet current military needs will be addressed by the Quick Reaction Fund/Rapid Reaction Fund presentation. The session will also include a presentation on opportunities for collaborative research and technology development through the Coalition Warfare Program and be rounded out with a presentation on collaborative international research and technology development.

8:15 AM **Strategic Imperatives for DoD S&T Program**
Mr. Alan R. Shaffer, Principal Deputy Director, Defense Research & Engineering

8:45 AM **The Advanced Systems & Concepts Portfolio of Opportunities**
Dr. Charles Perkins, Acting, Deputy Under Secretary of Defense for Advanced Systems & Concepts

9:15 AM **The DoD T&E/S&T Program**
Mr. Gerald Christenson, T&E/S&T Program Manager, Defense Test Resource Management Center

9:45 AM **Break**

10:30 AM **Quick Reaction and Rapid Reaction Funds**
Mr. Glenn Fogg, Deputy Director, Rapid Reaction Technology Office

11:00 AM **Coalition Warfare Program**
Colonel Kathleen Hithe, USAF, Deputy Director for Coalition Warfare

11:30 AM **Allied Science & Technology… Changes at the Defence Science & Technology Organization**
Featured Speaker: Professor Robert Clark, CDS, Australian Defence Science & Technology

12:00 PM **Luncheon – Exhibits and Poster Papers Open**

1:00 PM **Keynote Address**
Dr. Zachary J. Lemnios, Chief Technology Officer, MIT Lincoln Laboratory

1:45 PM **Session 1: Army Session**
Co-Chairs:

- Dr. Cary Chabalowski, Director for Science & Technology Integration, Office of the Deputy Assistant Secretary of the Army (Research & Technology)

- Dr. Walter (Rick) F. Morrison, Principal, Booz Allen Hamilton

The Army Science and Technology (S&T) Strategy has a dual approach to delivering technology to the Warfighter. Army S&T fosters innovation and accelerates maturing technology to enable Future Force capabilities while exploiting opportunities to rapidly transition technology to the Current Force.

TUESDAY, APRIL 21, 2009

The goal of S&T is to develop technologies that will enable a Future Force that is more mobile, survivable and sustainable, and dominant on the battlefield. Three research areas which are essential to meeting this goal are Power and Energy, Network Science, and Robotic Systems. S&T research in power and energy is aimed at reducing fossil fuel and battery demand through reduced platform energy consumption, more efficient power sources, smart energy management and the development of alternative energy options. Our efforts in Network Science will provide the foundation for enhancement of Battle Command in a highly mobile, highly distributed, information-rich environment. The increased utilization of unmanned robotic systems has proven to be extremely effective in current operations. Advancing research in autonomous perception, maneuver and tactics technology will result in unmanned air and ground systems that remove the soldier from dangerous and "dirty" work. The Army's Research, Development and Engineering Command (RDECOM) Technology Focus Teams/Systems Integration Domains provides a means for industry to engage in partnerships with the research and development community within the RDECOM.

1:45 PM **Army Science & Technology: Empowering Soldiers Through Innovative Technology**
Dr. Thomas Killion, Deputy Assistant Secretary of the Army (Research &Technology)/Chief Scientist

2:30 PM **Technology Focus Teams/Systems Integration Domains**
COL Craig G. Langhauser, Director, Simulation and Training Center, RDECOM

3:00 PM **Break in Exhibit Hall**

3:30 PM **Power and Energy**
Dr. Edward C. Shaffer, Sensors and Electronic Devices Directorate, U.S. Army Research Laboratory

4:00 PM **Network Science**
Dr. David Skatrud, Director, Army Research Office

4:30 PM **Robotic Systems**
Mr. Jeffrey F. Jaster, Deputy Associate Director for Autonomous Systems Intelligent Ground Systems, RDECOM-TARDEC

5:00 PM **Special Presentation: The Focus Center Research Program**
Dr. Jeffery Rogers, Program Manager, Focus Center Research Program, Defense Advanced Research Projects Agency (DARPA)

5:30 PM **Reception in Exhibit Hall**

WEDNESDAY, APRIL 22, 2009

7:00 AM **Conference Registration and Continental Breakfast**

8:00 AM **Administrative Remarks**

8:15 AM **Session 2: Air Force Session**
Co-Chairs:

- Dr. Patrick A. Mason, Senior Planner, Strategy Office in the Office of the Deputy Assistant Secretary (Science, Technology and Engineering)
- Colonel Jocelyn M. Seng, USAFR, Ph.D., Mobilization Assistant to the Deputy Assistant Secretary (Acquisition Integration)

This session begins with an Air Force R&D overview on how the Air Force S&T is focused and protected in order to provide continued dominance in air and space. This focus and protection is a strategic imperative of the Air Force as DoD budgets compete in tight fiscal environments of the future. The Air Force must maximize its R&D resources to strengthen the systems planning, engineering and analysis processes required for transition from research into Air Force weapons systems. The second presentation provides an overview of the Air Force basic science program that champions research that in the future, could profoundly impact the Air Force. As the R&D community is composed primarily of scientists, technologists, engineers and mathematicians (STEM) and acquisition professionals, this session will include a presentation on developing the Air Force's intellectual capital required to meet current and future Air Force priorities.

8:15 AM **Overview of Air Force R&D**
Mr. Terry J. Jaggers, Deputy Assistant Secretary (Science, Technology and Engineering)

9:00 AM **Overview of Air Force Basic Research**
Dr. Brendan B. Godfrey, Director, Air Force Office of Scientific Research

WEDNESDAY, APRIL 22, 2009

9:30 AM **Air Force STEM Workforce Today and Tomorrow**
Mr. Leif E. Peterson, National Research Council, Air Force Science Board Committee on "Examination of the U. S. Air Force's STEM Workforce Needs in the Future and Its Strategy to Meet Those Needs"

10:00 AM **Break - Exhibits and Poster Papers Open**

10:45 AM **Panel Discussion on "Processes for Effective R&D Planning & Technology Transition"**
Discussions will include:
- Air Force R&D Strategy and Technology Transition Efforts
- Value of 6.4 in Providing a Strong Foundation for Technology Transition
- Air Force Research Laboratory Perspective on Technology Transition

Panel Moderator: Dr. John W. Betz, Chair, Air Force Scientific Advisory Board

- Dr. Brendan B. Godfrey, Director, Air Force Office of Scientific Research
- Lieutenant Colonel Ralph A. Sandfry, Chief, R&D Strategy Branch, Office of the Deputy Assistant Secretary (Science, Technology and Engineering)
- Lieutenant Colonel Scott Nowlin, Chief, Air Force Technology Transition Office in the Office of the Deputy Assistant Secretary (Science, Technology and Engineering)
- Ms. Roberta M. Ewart, Chief Scientist, Air Force Space & Missile Systems Center
- Mr. Wendell D. Banks, Director, Plans and Programs, Air Force Research Laboratory
- Ms. Anne Carstens, Chief, Acquisition Center of Excellence, Air Armament Center

12:00 PM **Luncheon - Exhibits and Poster Papers Open**
Speaker: Mission to Outer Space
Mr. Bill Shepherd, Chief Science Advisor, USSOCOM

1:30 PM **Session 3: Naval Session**
Co-Chairs:
- Mr. Dennis L. Ryan, III, Science and Technology Planning Director, Johns Hopkins University, Applied Physics Laboratory
- Dr. Joseph Lawrence, III, Director of Transition, Office of Naval Research
- Mr. E. Terrence Dailey, Director of Operations, Software Engineering Institute

The Navy and the Marine Corps have long relied upon Science and Technology to inject new capabilities into the naval warfighter's toolkit. Tools from that kit must perform reliably in challenging operational environments and the reliability has often been achieved by combining technologies inseparably in a single system, weapon or piece of equipment. Previously, new technologies were mainly injected through totally new systems, weapons or equipments, but that has changed. Key enablers to improving the speed of technology refresh and improvement in naval systems are open architecture and common hardware. Use of these principles will allow the U.S. to remain ahead of potential adversaries in the evermore technologically advanced global arena. Thus, this session will focus on the Department of the Navy's efforts to reduce costs while introducing new capability faster.

1:30 PM **Avoiding Cost Growth through Open System Architecture**
Mr. Jim Thomsen, Principal Civilian DASN, ASN RD&A

2:15 PM **Innovating for the Future**
Dr. Larry Schuette, Director of Innovation, Office of Naval Research

2:45 PM **Break - Exhibits and Poster Papers Open (Last Chance to View Exhibits)**

3:30 PM **Panel on Naval Open Architecture**
Panel Moderator: Mr. Nick Guertin, Deputy Director for Open Architecture (PEO IWS 7B)

- Dr. Joseph Lawrence, III, Director of Transition, Office of Naval Research
- Dr. Wayne Meeks, Executive Director, Deputy Assistant Secretary of the Navy - Ships
- Mr. James Smerchansky, Director for Above Water Sensors, Program Executive Office for Integrated Warfare Systems
- Mr. John Andrews (PEO C4I) *(Invited)*

5:00 PM **Session Adjourned**

THURSDAY, APRIL 23, 2009

7:00 AM **Conference Registration and Continental Breakfast**

7:40 AM **Administrative Remarks**

7:45 AM **Session 4: Capabilities Needed by the Combatant Commanders**
Co-Chairs:

- Mr. James S. B. Chew, Vice President, Science & Technology, ATK
- Mr. Robert W. Baker, Deputy Director, Plans & Programs, ODDR&E

Meeting the capability needs of the warfighter is the most important goal of the DoD Science and Technology program. Establishing strong communications between the warfighter and the researcher is essential for understanding these capability needs. Warfighters traditionally communicate their needs in terms of capability gaps. The DoD S&T community must be able to address those gaps in S&T projects and demonstrate how enabling technology can effectively and rapidly fill these capability gaps. In this session, representatives of U.S. Combatant Commanders will describe what new operational capabilities would make a big difference in their ability to conduct military operations in their areas of responsibility.

7:45 AM **How Capabilities are Developed and Delivered to the Combatant Commanders**
Mr. Mike Knollmann, Assistant Deputy Under Secretary of Defense (Joint & Coalition Operations Support)

8:15 AM **USCENTCOM**
Mr. Martin Drake, Science Advisor, USCENTCOM

8:45 AM **USSOCOM**
Mr. Bill Shepherd, Chief Science Advisor, USSOCOM

9:15 AM **USPACOM**
Mr. Jim Burdell, Science Advisor, USPACOM

9:45 AM **USSOUTHCOM**
Mr. Herb Warden, JCTD Program Manager, USSOUTHCOM

10:15 AM **Break**

10:30 AM **Best Poster Winner Announcement**

10:45 AM **NORTHCOM**
Mr. Edmund M. Doray, Chief, Concepts and Technology Division, N-NC Interagency Directorate, NORTHCOM

11:15 AM **USTRANSCOM**
Mr. Lou Bernstein, Science Advisor, USTRANSCOM

11:45 AM **USSTRATCOM**
Mr. Dave Tyner, Deputy Division Chief, J81, USSTRATCOM

12:15 PM **Box Lunches**

1:15 PM **Session: Strategic Discussion on DoD Independent Research and Development**
Chair:

- Dr. Andre van Tilborg, Deputy Under Secretary of Defense for Science and Technology

In this session, we will discuss DoD strategic technology interests as well as set the stage for additional deliberations later in 2009 for maximizing benefit to the DoD from investments in the approximately $2.4B of annual Independent Research and Development (IR&D) efforts. The Office of the Secretary of Defense (OSD) and the Services will present technology and engineering investment opportunities which are best addressed by industry-led initiatives or considered high priority but not uniquely aligned with an individual Service or Agency mission. Discussions will be held to address collaborative IR&D oversight mechanisms between DoD and industry to catalog and promulgate the results of on-going investments, and identify high-potential opportunities to provide increased capabilities to the warfighter or reduce acquisition development risks, costs, and schedule. In conjunction with industry representation and collaboration, DoD has reinvigorated the Technology Coordination Group (TCG) activities established by DoD Directive 3204.1. Discussions will help to shape TCG responsibilities and define those collaborative oversight activities and set the stage for a more lengthy discussion later in 2009.

THURSDAY, APRIL 23, 2009

1:15 PM **Opening Remarks**
Dr. Andre van Tilborg, Deputy Under Secretary of Defense for Science and Technology

1:30 PM **Military Department Presentations**
Army - Dr. Jagadeesh Pamulapati, Deputy Director for Laboratory Management

Navy - Rear Admiral Nevin P. Carr, USN, Chief of Naval Research

Air Force - Mr. Wendell D. Banks, Director, Plans & Programs, Air Force Research Laboratory

3:00 PM **Break**

3:15 PM **Topics for Consideration**
Dr. Andre van Tilborg, Deputy Under Secretary of Defense for Science and Technology

3:30 PM **Discussion**

5:15 PM **Conference Adjourns**

ONE-ON-ONE SESSIONS

There will be the opportunity to have fifteen minute one-on-one conversations with Technology Managers from the Air Force Army and the Navy. Sign up for sessions can be done at the registration counter.

SCHEDULE:

Tuesday, April 21, 2009

Air Force:
3:00 PM - 5:00 PM
Colonel Kenneth L. Echternacht, Science and Technology Division Chief, Office of the Deputy Assistant Secretary (Science, Technology and Engineering)

Navy:
1:45 PM - 5:00 PM
Dr. Larry Schuette, Director of Innovation, Office of Naval Research
Dr. Joseph Lawrence, III, Director of Transition, Office of Naval Research

Wednesday, April 22, 2009

Air Force:
3:00 PM - 5:00 PM
Colonel Kenneth L. Echternacht, Science and Technology Division Chief, Office of the Deputy Assistant Secretary (Science, Technology and Engineering)

Army:
9:00 AM - 12:00 PM, 1:30 PM - 5:00 PM
Dr. Cary Chabalowski, Director for Science & Technology Integration, Office of the Deputy Assistant
Secretary of the Army (Research & Technology)

Navy:
9:30 AM - 11:30 AM and 5:00 - 6:00 PM
Dr. Larry Schuette, Director of Innovation, Office of Naval Research
Dr. Joseph Lawrence, III, Director of Transition, Office of Naval Research

Thursday, April 23, 2009

Navy:
8:15 AM - 10:15 AM
Dr. Larry Schuette, Director of Innovation, Office of Naval Research
Dr. Joseph Lawrence, III, Director of Transition, Office of Naval Research