NATIONAL STRATEGIC RESEARCH INSTITUTE

at the University of Nebraska

2015 ANNUAL REPORT

Cover image courtesy of the Department of Defense

Thanks to the innovation and hard work of our entire team, 2015 has been an exceptional year for NSRI and the University. In late September 2015, the National Strategic Research Institute (NSRI) at the University of Nebraska celebrated its third year of operation as the CWMD-dedicated University Affiliated Research Center (UARC) for USSTRATCOM and the Department of Defense. Beyond research funding, our task order and project performance evaluations provide evidence that our researchers are producing a strong impact, successfully delivering on the requirements and desired solutions of our sponsors.

In just three years as an institute, we have matured greatly applying many lessons-learned and have evolved more effective processes to support our DoD sponsors. We've opened our aperture beyond our University. Collaborations with partner universities and industry, when in the best interests of our sponsors, have helped produce even better and stronger solutions to achieve the mission.

"We must get faster solutions delivered to our warfighters". This statement from DTRA Director, Mr. Ken Meyers was made during the recent 2015 Defense Threat Reduction Agency (DTRA) Chemical and Biological Defense (CBD)/Science and Technology (S&T) conference. Meyers articulated the grave concerns and challenges that industry leaders across the board are facing, including the need for common user interface devices, integrated and layered approaches across systems to work in concert, and the need to look beyond single solutions against a single threat. The NSRI is well positioned to deliver solutions to our warfighters.

The DTRA CBD S&T conference was one of many conferences and meetings attended over the year, where NSRI listened to the needs of leaders from across the CWMD community. Major General Lein, US Army Medical Research and Materiel (USAMRMC) Commander stated "Protecting the force is priority number one." He also conveyed concerns around the challenges of unpredictable funding and shrinking S&T budgets, while needing to accelerate the medical countermeasure product development lifecycle and increasing communication between the warfighter and the S&T community to create faster innovative solutions. In the words of MAJ GEN Lein, "we need to get the scientist in the foxhole so they better understand the demands of the warfighters in the field".

Our approach to getting scientists in the foxhole has us further developing our understanding of warfighter requirements, while concentrating on delivering solutions to their many needs. We've added two key scientific and operational experts to our NSRI staff, Dr. William Charlton, Director of Research, and Dr. Eric Van Gieson, Chief Technology Officer and Director of Research Strategy. Both are uniquely experienced researchers in the chemical, biological, radiological and nuclear mission disciplines, and will help vector our research toward new sponsors and focus the efforts of our pool of University of Nebraska and partnering university researchers to expand on the very specific needs of a broader community of CWMD requirements.

We continue to aggressively explore research opportunities across the CWMD community. NSRI and the University of Nebraska remain committed to fulfilling our role as the DoD and USSTRATCOM designated UARC for Combatting Weapons of Mass Destruction. While we've accomplished much, there is much more to come. Thank you for reading our report, and let us know of any CWMD problems we can solve.

Robert Hinson, USAF, Lt Gen (Ret)
NSRI Executive Director

Protecting the force is priority number one, and the NSRI is well-positioned to deliver solutions to our warfighters.

We have broadened our understanding of warfighter requirements, and that has focused our efforts in delivering solutions to their many needs.

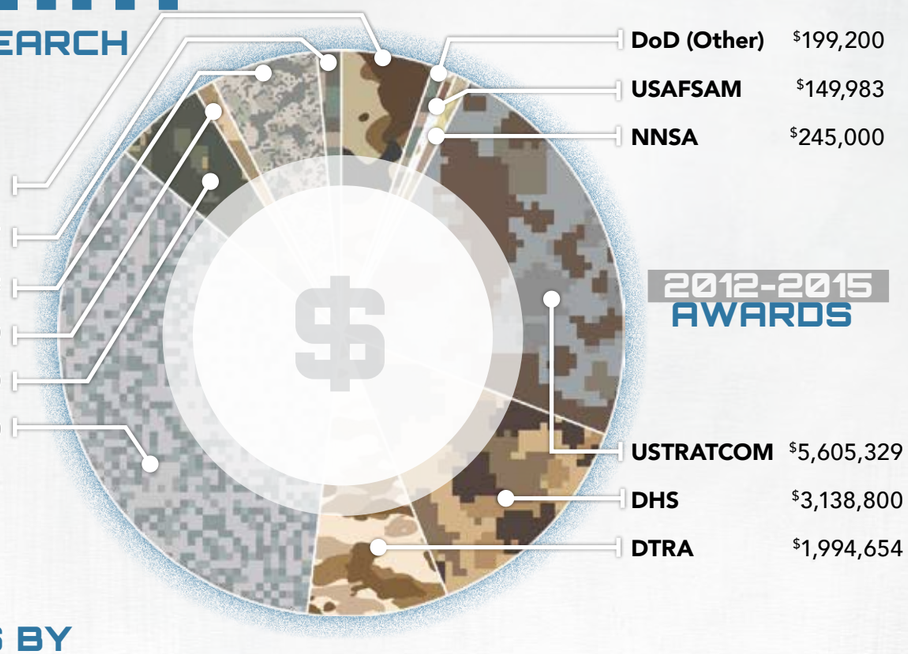
PROTECTING THE WAR FIGHTER

Image courtesy of the Department of Defense

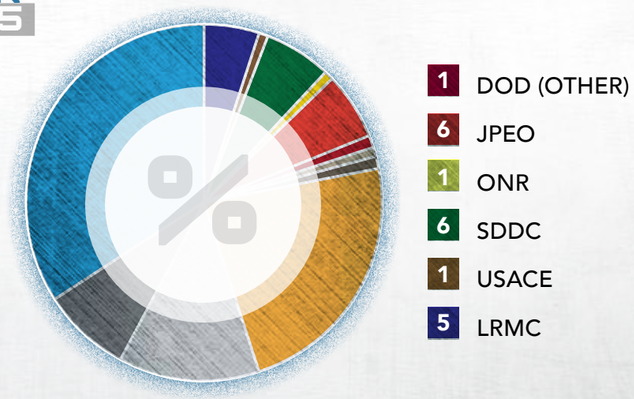
NSRI RESEARCH ACCOMPLISHMENTS · 2012 – 2015

As of September 30, 2015, the NSRI successfully completed 25 research projects while currently performing research for 20 additional projects. The NSRI does not receive any direct appropriated funding by the DoD or USSTRATCOM, therefore, we rely completely on task order contracts generated through our sole-source, Indefinite Delivery Indefinite Quantity (IDIQ) contract with USSTRATCOM and other direct contracts and grants. The NSRI continues to demonstrate its value to the nation as evidenced by our research supported by USSTRATCOM, other DoD agencies and the Department of Homeland Security.

$24.1m
TOTAL RESEARCH PROJECTS AWARDED

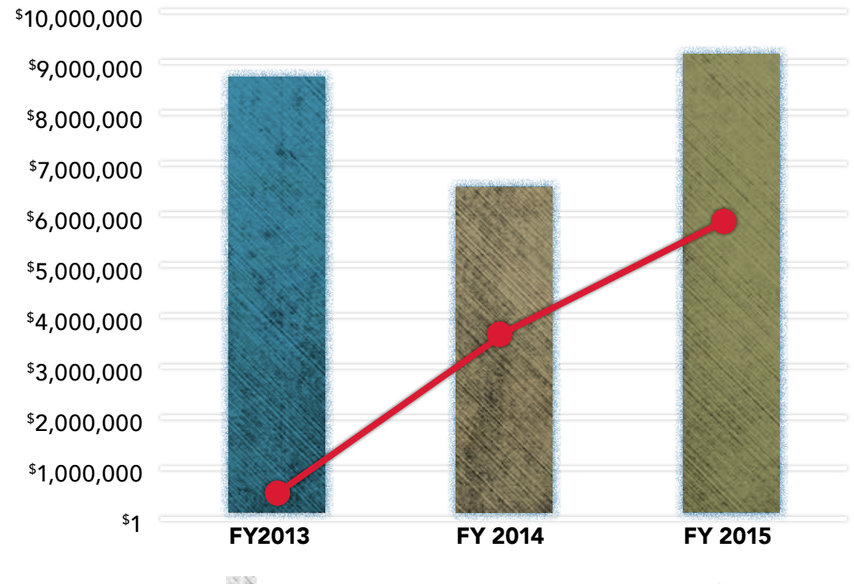


AWARDS BY CUSTOMER 2012-2015

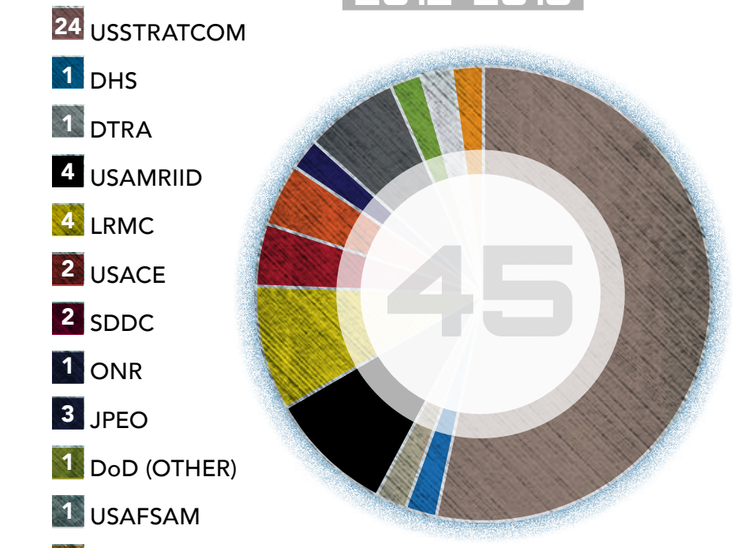


NSRI EXPENDITURES

RESEARCH AWARDS AND REVENUE



NUMBER OF TASK ORDERS, CONTRACTS, AND GRANTS 2012-2015



TOP 5 LARGEST NSRI SPONSORS IN 2015

1
US Army Medical Research Institute of Infectious Diseases (USAMRIID)

$5,318,291

Immunomics Unit Research Support of USAMRIID Center for Genome Sciences

PI: Dr. Mariano Sanchez-Lockhart, Department of Pathology & Microbiology, University of Nebraska Medical Center

2
US Transportation Command (USTRANSCOM)

$1,000,000

Traffic Calming Elements for Entry Control Facility Threat Delay and Containment

PI: Dr. Larry Rilett, Nebraska Transportation Center, University of Nebraska Lincoln

3
Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD)

$994,481

Next Generation Sequence Training Module

PI: Dr. Michael Wiley, College of Public Health, University of Nebraska Medical Center

4
US Strategic Command (USSTRATCOM)

$961,795

Strategic Leaders Fellowship Program

PI: Dr. Gina Ligon, University of Nebraska Omaha

Decision Support Capabilities for National Leadership

PI: Dr. Doug Derrick, University of Nebraska Omaha

Exploration of Horizontal and Vertical Nuclear Proliferation

PI'S: Dr. Rupal Mehta and Dr. Tyler White, University of Nebraska Lincoln

Intelligence Support to Deterrence Operations

PI: Dr. Gina Ligon,

Critical Infrastructure Resilience and Supervisory Control and Data Acquisition (SCADA) Research

PI: Dr. Bill Mahoney, University of Nebraska Omaha

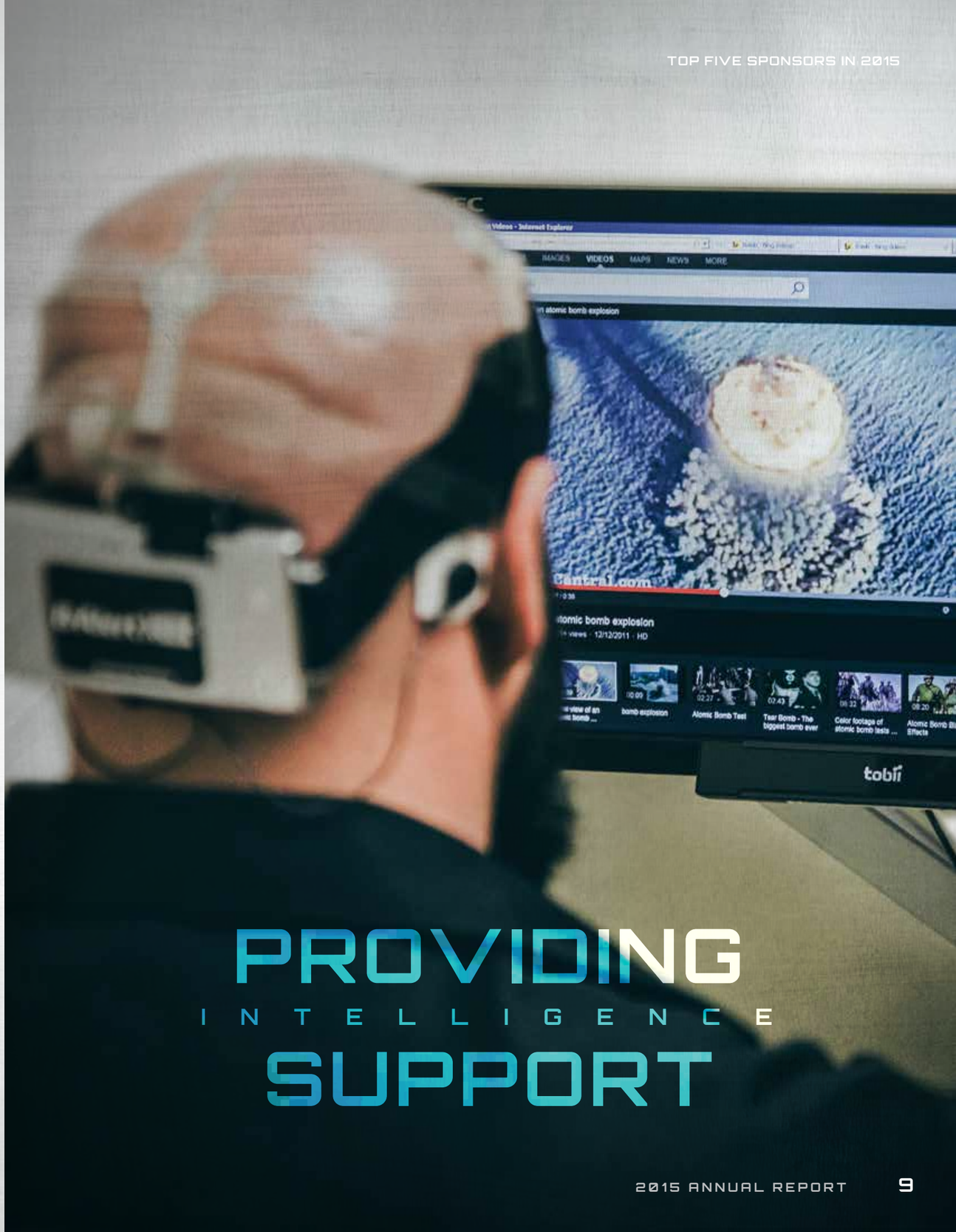
5
Office of Naval Research (ONR)

$308,687

Functionalized Metallic Surfaces for Enhanced Heat Transfer, Drag Reduction, and Novel Power Sources

PI: Dr. Dennis Alexander, University of Nebraska Lincoln

TOP FIVE SPONSORS IN 2015



PROVIDING
INTELLIGENCE
SUPPORT

Our researchers — who contribute their expertise from across the University of Nebraska — are producing a significant impact, successfully delivering on the requirements and desired solutions of our sponsors.

WORKING WITH EXPERT RESEARCHERS

RESEARCH IMPACT

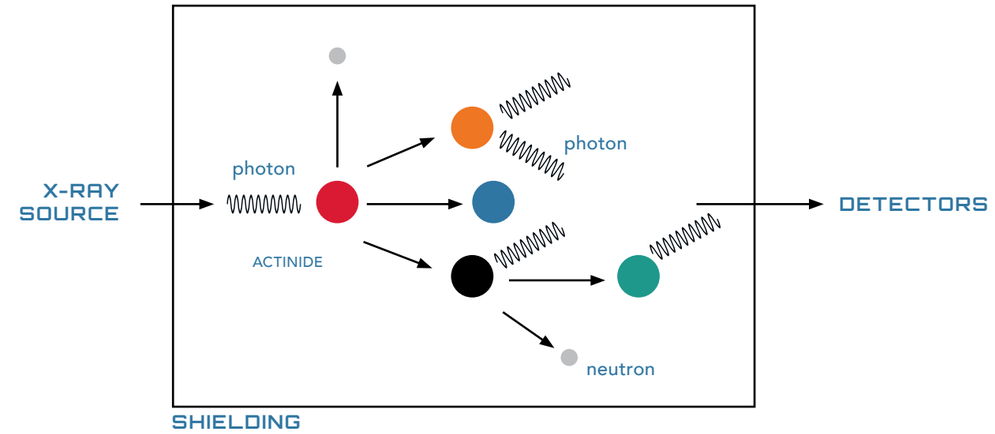
RESEARCH FOCUS AREAS

- Deterrence and Dissuasion
- Nuclear, Chemical, and Biological Weapon Proliferation
- CBRN Threat and Vulnerability Assessment
- Detection of Nuclear and Radiological Materials
- Detection of Chemical and Biological Agents
- Interdiction of CBRN Threats
- Nuclear Explosion Monitoring
- Biosurveillance
- Bioinformatics and Epidemiology
- Antibiotics, Antiviral Drugs, and Vaccine Development
- Medical Innovations against WMD Threats
- Emergency Response to Nuclear, Radiological, Chemical and Biological Events
- Remediation of Biological, Chemical, and Radiological Contamination
- Nuclear Forensics and Attribution
- Space, Cyber, and Telecommunications Law

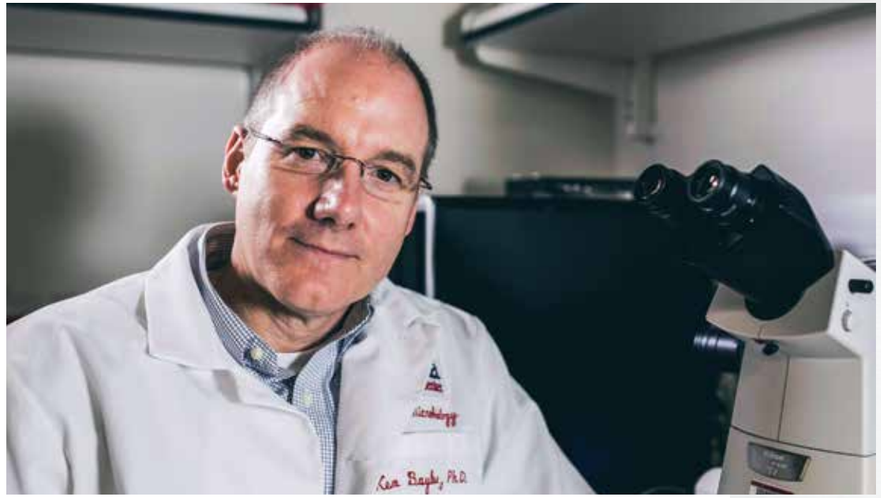
DETECTING NUCLEAR MATERIAL IN SHIELDED CONTAINERS

Dr. Donald Umstadter is the Director of Extreme Light Laboratory (ELL) at the University of Nebraska-Lincoln (UNL) and a world leader in the development of compact and high-intensity light sources. NSRI has worked closely with ELL scientists to develop a compact, high-intensity (1012 photons/s/steradian), narrowband and tunable (energies from 0.5-15 MeV) X-ray source that can be used to detect illicit nuclear material even when that material is enclosed in heavily shielded cargo containers. The X-rays are produced through inverse-Compton scattering with a laser-driven electron beam. These X-rays can be directed onto a target of interest, even at long distances from the source (on the order of 100 meters), and the photons can then cause photofission or nuclear resonance fluorescence within uranium or plutonium in the target. The resultant radiation from these reactions can be used to detect the presence (or absence) of uranium or plutonium in the target. ELL is currently working to demonstrate the capability to use this X-ray source as a radiography device that similarly can radiograph highly shielded material to detect the trafficking of illicit nuclear materials.

The Diocles laser-driven x-ray source (top) and schematic (right) demonstrating the usage of the laser to detect shielded uranium and plutonium (or actinide materials).



Ginamarie Ligon is leading the UNO effort to improve U.S. strategic deterrence through a better understanding of State-level leadership behavior.



UNMC's Ken Bayles says that UNMC is contributing to study of infectious pathogens through the Immunomics project.

INTELLIGENCE SUPPORT TO DETERRENCE OPERATIONS

The University of Nebraska-Omaha (UNO) and NSRI have been working for two years to enhance deterrence through the development of objective markers of State-Level leadership behavior. In 2015, we developed a better understanding of observable adversarial behaviors related to measuring and assessing a state of deterrence. In 2016, we are extending the aggregated indicator models to individual analyst and organizational application especially against regional adversaries. We are specifying behaviors, attributes and potential biases in interpreting strategic deterrence indicators in an intelligence organization. Organizational pathways identify touchpoints for local process integration, potential organizational architectures appropriate for strategic deterrence intelligence work, and relational strategies for broader integration with USSTRATCOM and Intel Community processes. We will make recommendations to improve the current analytical frameworks to incorporate generalized patterns for the purposes of identifying net assessments of strategic threats and the organizational pathways that would facilitate the dissemination of resulting intelligence indicators for National Decision Making. This social science research will lead to a better understand of the analytical process and cognitive method related to deterrence, as well as organizational pathways to apply this process and method.

IMMUNOMICS RESEARCH

NSRI, in collaboration with the University of Nebraska Medical Center (UNMC), is managing and operating the Immunomics Unit of the US Army Medical Research Institute of Infectious Diseases (USAMRIID) to study immune system regulation and response to pathogens using genome-wide approaches. We are dissecting the immune response after vaccination using novel next generation sequencing (NGS) techniques. UNMC scientists are characterizing the vaccine recipient's Major Histocompatibility Complex (MHC), discovering the diversity and maturation of their B and T cell repertoire, and mapping the epitope targets of the antibody response. This work is aiding the Department of Defense and other federal agencies to use genomics and bioinformatics tools to monitor infectious disease threats and to help guide the development of therapeutics to fight pathogens in the future. This work supports the USAMRIID mission to conduct research on current and emerging biodefense threats, resulting in medical solutions to protect the warfighter.

Technicians set up an assay test for Ebola within the U.S. Army Medical Research Institute of Infectious Diseases' containment laboratory. Samples are handled in negative-pressure biological safety cabinet to provide additional layer of protection. (Photo by Randal Schoepp, USAMRIID)

DETERRING ENEMY OPERATIONS

We have found ways to measure and assess a state of deterrence by developing a better understanding of observable adversarial behaviors among State-Level leaders.

Image courtesy of the Department of Defense

2015 NSRI RESEARCHER RECOGNITION AWARDS

The NSRI hosted a Researcher Recognition event in the fall of 2015, bringing together research scientists from across the University of Nebraska. The event recognized the accomplishments of researchers and others who have contributed to the success of the NSRI and commemorated the 3rd anniversary of the NSRI contract with U.S. Strategic Command (USSTRATCOM), initiated in September, 2012.

A total of six awards were presented in four categories for recognition: Distinguished Scientist, Research Leadership, Exceptional Research Student and Exceptional Staff Contributor. The selection criteria for Distinguished Scientist was based on significance of research performed, over $2 million dollars in research funding, performance feedback from research sponsors, repeat projects as a result of research findings and potential.

In addition to research scientists from across the University of Nebraska, the NSRI Researcher Recognition event brought together University of Nebraska support staff, NSRI support staff, as well as UARC program analysts from USSTRATCOM and provided an opportunity for faculty experts and staff to network and discuss the future of NSRI and NU research.

From left-to-right:

Ms. Joanne Loch, recipient of the 2015 Exceptional Staff Contributor award;

Dr. Don Umstadter, recipient of 2015 Distinguished Scientist award;

Dr. Gina Ligon, recipient of 2015 Research Leadership award and also accepting the Exceptional Research Student award on behalf of Ms. Mackenzie Harms;

Dr. Ken Bayles, recipient of 2015 Distinguished Scientist award;

Dr. Larry Rilett, recipient of 2015 Distinguished Scientist award; and

NSRI Executive Director Robert Hinson, USAF, Lt Gen (ret).

"The NSRI is committed to being the advocate for researchers and their significance to combatting some of the most challenging threats to our warfighters. Your contributions to our national security cannot be overstated."

ROBERT HINSON,
USAF, LT GEN (RET) NSRI
EXECUTIVE DIRECTOR

USSTRATCOM STRATEGIC LEADERSHIP FELLOWS PROGRAM

In 2014, the NSRI and the United States Strategic Command established the Strategic Leadership Fellows Program, a graduate level educational program partnership between USSTRATCOM and the University of Nebraska. Uniquely designed for the Department of Defense civilian workforce, students spend 13 weeks in-residence receiving classroom-based and hands-on learning opportunities in leadership development at the University of Nebraska Omaha's College of Business Administration. The program targets command-specific needs including countering Chemical, Biological, Radiological and Nuclear (CBRN) weapons, and national and international cyberspace law.

Each year, ten USSTRATCOM civilian employees are selected into the program through a rigorous and competitive process, a prestigious academic and professional honor. The ultimate objective is a civilian workforce capable of synthesizing diverse issues of national security in order to effectively plan, synchronize, and advocate for global operations and capabilities.

"This program has become an important part of developing our workforce to better understand the challenges and create innovative approaches for 21st century deterrence in an extremely complex global security environment."

-U.S. Navy Adm. Cecil D. Haney, USSTRATCOM Commander

"Fellows are quite simply, the best of the best civilian leaders at USSTRATCOM, which is why the government is making a significant investment in their development."

-Douglas Derrick, Ph.D., Assistant Professor of IT Innovation, University of Nebraska Omaha

"The STRATCOM Fellows program provided me the catalyst to get out of my comfort zone and explore non-traditional USSTRATCOM issues like ISIS, violent extremist organizations, cyber warfare/ defense and even water conservation issues. Additionally the opportunities to interface with corporate and government agencies throughout the Omaha area on how they approach issues were truly eye-opening experiences."

-Ian R. Pelletier, Strategic Leadership Fellows Program Graduate

20 USSTRATCOM STRATEGIC LEADER FELLOWS

PROFESSIONAL EDUCATION IMPACT:

The NSRI fulfills an educational mission in addition to research and development. NSRI is committed to providing opportunities to qualified students to support research while gaining experience working on DoD projects. An expectation of NSRI as a UARC is to mentor and grow young talent to participate in future DoD research, pursue advanced degrees, or seek a career with the Government in fields related to CWMD.

54 STUDENTS, PHD & POST-DOCTORAL ACROSS TASK ORDERS & CONTRACTS

10 SCHOLARLY JOURNAL ARTICLES & PUBLICATIONS IN 2015

Arnold, N., Mahoney W., Derrick, D., Ligon, G.,and **Harms, M.** "Feasibility of a cyber attack on national critical infrastructure by a non-state violent extremist organization." The Journal of Information Warfare 14, no. 1 (2015)

Available at:
https://www.jinfowar.com/feasibility-of-a-cyber-attack-on-national-critical-infrastructure-by-a-non-state-violent-extremist-organization/

Banerjee, S., Chen, S., Powers, N., Haden, D., Liu, C., Golovin, J., Zhang, J., Zhao, B., Clarke, S., Pozzi, S., Silano, J., Karwowski, H., and **Umstadter, D.** "Compact source of narrowband and tunable x-rays for radiography," Nuclear Instruments and Methods in Physics Research Section B (2015): 106-111

Available at:
http://www.sciencedirect.com/science/article/pii/S0168583X15000282

Chen, S., Golovin, G., Miller, C., Haden, D., Banerjee, S., Zhang, P., Liu, C., Zhang, J., Zhao, B., Clarke, S., Pozzi, S. and **Umstadter, D.** "Shielded radiography with a laser-driven MeV-energy x-ray source." Nuclear Instruments and Methods in Physics Research B (2015)

Available at:
http://www.doc88.com/p-1126632872435.html

Claus, Brian; Gandhi, Robin A.; Rawnsley, Julia; and **Crowe, John.** "Using the Oldest Military Force for the Newest National Defense." Journal of Strategic Security 8, no. 4 (2015): 1-22.

Available at:
http://scholarcommons.usf.edu/jss/vol8/iss4/1

Eshelman, R., and **Derrick, D.** "Relying on the kindness of machines? The security threat of artificial agents." Joint Forces Quarterly 77, no. 2 (2015): 70-75.

Available at:
http://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-77/jfq-77_70-75_Eshelman-Derrick.pdf

Golovin, G., Banerjee, S., Zhang, J., Chen, S., Liu, C., Zhao, B., Mills, J., Brown, K., Petersen, C. and **Umstadter, D.** "Tomographic imaging of nonsymmetric multicomponent tailored supersonic flows from structured gas nozzles," Appl. Opt. 54, 3491-3497 (2015)

Golovin, G. and **Chen, S.** and **Powers, N.** and **Liu, C. and Banerjee, S.** and **Zhang, J.** and **Zeng, M.** and **Sheng, Z.** and **Umstadter, D.** "Tunable monoenergetic electron beams from independently controllable laser-wakefield acceleration and injection." Physical Review ST Accelerators and Beams 18, no. 1 (2015)

Available at:
http://link.aps.org/doi/10.1103/PhysRevSTAB.18.011301

Ligon, Gina Scott; Harms, Mackenzie; and **Derrick, Douglas C..** "Lethal Brands: How VEOs Build Reputations." Journal of Strategic Security 8, no. 1 (2015): 27-42.

Available at:
http://scholarcommons.usf.edu/jss/vol8/iss1/3

Umstadter, D. "All-laser-driven Thomson X-ray sources." Contemporary Physics 56, no. 4 (2015)

Available at:
http://www.tandfonline.com/doi/full/10.1080/00107514.2015.1023519

Yin, X., Liu, Y.F., Ewing, D., Ruder C., De Rego P., Edelstein, A., Liou, S.H., "Tuning magnetic nanostructures and flux concentrators for magnetoresistive sensors." Proc. SPIE 9551, Spintronics VIII, 95512N (2015)

Available at:
http://proceedings.spiedigitallibrary.org/proceeding.aspx?articleid=2441310

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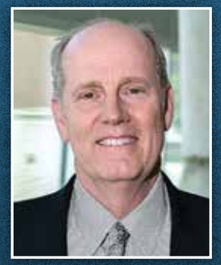

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BOARD OF DIRECTORS

The NSRI Board of Directors serve in an oversight role and have the authority and responsibility to commit personnel, facilities and other required resources to support the needs of NSRI in completing projects awarded by USSTRATCOM and other DoD and federal agencies. Board members are appointed with proven leadership and expertise in government, military, industry and university sectors.

Three board positions are held by the University of Nebraska's chief research officers – Vice Chancellor of Research and Economic Development at the University of Nebraska-Lincoln, Associate Vice Chancellor for Research and Creative Activity at the University of Nebraska Omaha and Vice Chancellor for Research at the University of Nebraska Medical Center. This ensures the integration of NSRI and NU research strategies in support of the NSRI mission.

NSRI BOARD OF DIRECTORS:

Carl V. Mauney
Chairman of the Board
U.S. Navy Vice Admiral (Ret)

Gary Gates
Past President and CEO
Omaha Public Power District

Scott Snyder, Ph.D.
Associate Vice Chancellor for Research and Creative Activity
University of Nebraska at Omaha

Roosevelt "Ted" Mercer Jr.
Vice-Chairman
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Prem Paul, D.V.M., Ph.D.
Vice Chancellor for Research and Economic Development
University of Nebraska-Lincoln

Joel D. Pedersen, J.D.
Secretary &
General Counsel to the Board
Vice President and
General Counsel
University of Nebraska

Honorable Benjamin "Ben" Nelson
Senator for Nebraska –
2001-2013

Jennifer Larsen, MD
Vice Chancellor for Research
University of Nebraska
Medical Center

David E. Lechner
Treasurer to the Board
Senior Vice President for Business and Finance
University of Nebraska

NSRI KEY LEADERSHIP ADDITIONS

Dr. William Charlton

serves as Research Director for Nuclear Programs for the National Strategic Research Institute. Charlton also serves as Associate Vice Chancellor for Research and Professor of Mechanical and Materials Engineering at the University of Nebraska-Lincoln.

Prior to joining the NSRI, Dr. Charlton served as the founding Director of the Nuclear Security Science & Policy Institute at Texas A&M University from 2006-2015. He was also a faculty member in the Department of Nuclear Engineering at TAMU from 2003-2015. An expert in the area of nuclear nonproliferation research and education, Dr. Charlton served as an Assistant Professor in the Nuclear and Radiation Engineering Program at the University of Texas at Austin from 2000-2003 and was a Technical Staff Member in the Nonproliferation and International Security Division at Los Alamos National Laboratory from 1998-2000. Dr. Charlton is an expert in the area of nuclear security research and education and has taught courses on nuclear nonproliferation, nuclear security system design and analysis, nuclear forensics, and nuclear detection.

Dr. Charlton earned a Ph.D., M.S. and B.S. in Nuclear Engineering from Texas A&M University. Among his many awards, Dr. Charlton was named the George Armistead Jr. '23 Faculty Fellow at TAMU in 2005, was awarded the Dwight Look College of Engineering Faculty Fellow in 2007, was recognized as the Advisor of the Year by the TAMU Division of Student Affairs in 2009, earned the Special Service Award from the Institute of Nuclear Materials Management in 2010, and was named the Barbara and Ralph Cox '53 Faculty Fellow for the TAMU College of Engineering in 2013. He has over 200 technical publications in referred journals and conference proceedings.

Dr. Charlton teaches courses which study the technical aspects of nuclear nonproliferation, safeguards, and nuclear security as well as fundamentals of nuclear engineering.

Dr. Eric Van Gieson

serves as Director of Research Strategy & Chief Technology Officer for the National Strategic Research Institute. Based out of Washington D.C., he provides an NSRI presence in the national capital region to more effectively engage with the U.S. Government as a trusted partner in delivering technical solutions.

Dr. Van Gieson, a recognized expert in bio-therapeutics, sensor capabilities, bio-surveillance and diagnostics, comes to the NSRI after serving as Research and Development Director of Diagnostics and Bio-surveillance at MRI-Global. Prior to MRI-Global, he served as Division Chief of Diagnostics and Disease Surveillance with the Defense Threat Reduction Agency from 2011 to 2014. From 2004 to 2011, Dr. Van Gieson worked as a program manager for military diagnostics and counter-proliferation at the Johns Hopkins Applied Physics Laboratory. He has led several technology survey efforts for the Department of Defense in diagnostics and supported major diagnostics acquisition and science and technology programs.

Dr. Van Gieson holds a Ph.D. in Biomedical Engineering and a B.S. in Chemical Engineering from the University of Virginia. His published works include topics ranging from genomic analysis to unmanned systems autonomy. He holds six patent submissions. Among his many awards, Dr. Van Gieson was the recipient of four distinguished awards from Johns Hopkins University Applied Physics Laboratory, including Invention of the Year Award in 2005 for developing an RF/MW drug delivery device. He was recognized as Principal Professional Staff in 2011 and received Special Achievement Awards in 2006 and 2004 from Johns Hopkins University Applied Physics Laboratory. In 2001, he received two employee recognition awards from Veridian Systems. He earned the Outstanding Graduate Student Award from the University of Virginia Department of Biomedical Engineering in 2000, along with two Travel Awards from the Engineering in Medicine and Biology Society/ Biomedical Engineering Society.

ABOUT NSRI:

The National Strategic Research Institute (NSRI) at the University of Nebraska is one of 13 University Affiliated Research Centers (UARCs) in the nation. Established in 2012, NSRI is engaged in a long-term, strategic partnership with our Department of Defense (DoD) sponsor, United States Strategic Command (USSTRATCOM). The NSRI provides mission-essential research and development capabilities for combating weapons of mass destruction in five core competencies:

- NUCLEAR DETECTION AND FORENSICS
- DETECTION OF CHEMICAL AND BIOLOGICAL WEAPONS
- MEDICAL PASSIVE DEFENSE AGAINST WEAPONS OF MASS DESTRUCTION
- CONSEQUENCE MANAGEMENT
- SPACE, CYBER AND TELECOMMUNICATIONS LAW

NSRI VISION:

To be the Lead Combating Weapons of Mass Destruction academic research institution, delivering relevant mission essential research and development solutions to the warfighter, Department of Defense and other National Security Agencies.

NSRI MISSION:

The NSRI mission is to provide innovative and customer-focused research and development solutions for complex national security requirements to combat weapons of mass destruction.

SPONSORS:

Department of Defense (DoD) The DoD coordinates and supervises all agencies and functions of the government concerned directly with national security and the United States Armed Forces.

United States Strategic Command (USSTRATCOM) USSTRATCOM is one of nine DoD Combatant Commands. Its mission includes deterring attacks on U.S. vital interests and combating of weapons of mass destruction.

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NATIONAL STRATEGIC RESEARCH INSTITUTE

at the University of Nebraska