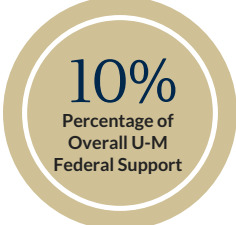




DEPARTMENT OF DEFENSE
SUPPORTED RESEARCH AT THE



UNIVERSITY OF MICHIGAN



FY 2017 Research Expenditures: \$81,025,915

Year-to-year, Department of Defense-supported projects involve about:

Faculty Researchers.....	421
Postdoctoral Fellows.....	63
Graduate Student Researchers.....	61

Examples of U-M projects supported by the Department of Defense, as well as those funded by U.S. Army Office of Research, Office of Naval Research, Air Force Office of Scientific Research and TARDEC.



SAFEGUARDS FOR SOLDIERS

Roadside bombs wounded more than 8,700 American troops in Afghanistan from 2010 to 2012, federal records show.

U-M researcher Matthew Reed is working to enhance the safety and comfort of seating aboard military vehicles. With funding from the Army's Tank Automotive Research, Development and Engineering Center, Reed and his colleagues measured dozens of variables as soldiers sat in vehicle mockups.

His research could help transform the way in which vehicles are designed so that military personnel are safer, less fatigued and can perform better.

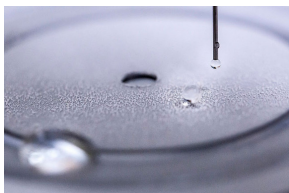


DEFENSE DOWNSIZING

Michigan, Ohio and Indiana have lost more than 6,800 defense supply-chain positions in recent years—cuts spurred largely by the ending of two foreign wars and the current federal fiscal environment.

Based on a successful pilot project, DOD awarded an \$8 million grant to U-M to assist communities and companies in the three states that have been impacted by these job losses.

The goal is to generate diversification plans for these communities and companies so they are more resilient and can attract new business, while retaining and growing existing enterprises.



WATER-REPELLENT COATING

A self-healing, water-repellent, spray-on coating developed at U-M is hundreds of times more durable than its counterparts.

It could enable waterproofing of vehicles, clothing, rooftops and countless other surfaces for which current waterproofing treatments are too fragile.

The Office of Naval Research, the Air Force Office of Scientific Research and the National Science Foundation supported research that led to the development of the coating, which also could help lower the resistance of ship hulls, leading to reductions in fuel consumption.



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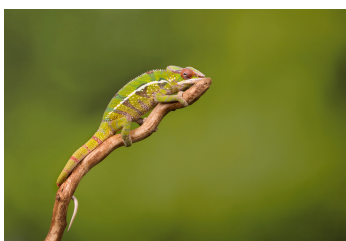


RISK AND RESILIENCE

U-M researchers partnered with three other universities on a groundbreaking five-year, \$65-million project that focused on measuring soldiers' mental health risk and resilience.

Funded by the Army and the National Institute of Mental Health (NIMH), the Army Study to Assess Risk and Resilience in Service (STARRS) members comprised the most extensive study ever on the mental health risk and resilience of U.S. military personnel.

Their findings reveal the rise in suicide deaths from 2004 to 2009 occurred not only in currently and previously deployed soldiers, but also among soldiers never deployed. Researchers also discovered nearly half of soldiers who reported suicide attempts indicated their first attempt was prior to enlistment.



CHAMELEON CRYSTALS

The ability to control crystals with light and chemistry could lead to chameleon-style color-changing camouflage for vehicle bodies and other surfaces.

U-M researchers, with support from the National Science Foundation, the U.S. Army Research Office and DOD, discovered a template-free method for growing shaped crystals that allows for changeable structures that could appear as different colors and patterns.

One source of color in crystal structures is the spacing between the particles that make up the crystal. The spacing can determine which colors of light the crystal absorbs and which it reflects, resulting in the visible color. By changing the spacing and other aspects of the crystal structure, it is possible to change the color.



CONCUSSION CONSORTIUM

Concussions remain a serious concern within college athletics, as student-athletes suffered an average of 10,500 concussions for the past five years, 3,400 of which occurred in football.

In an effort to enhance player safety, for the past several years, U-M Professor Steven Broglio has led the most comprehensive study of concussion and head impact exposure ever conducted.

As part of the Concussion Assessment, Research and Education (CARE) Consortium study, a partnership between DOD and the NCAA, every student-athlete from 30 schools nationwide, including U-M, undergo baseline testing before the season begins.

The goal is to improve athlete health and safety surrounding concussion, as well as the behavior and culture of concussion reporting and management.