Defense Systems DIGEST

4 DECEMBER 2018 – THE LATEST FROM DEFENSE SYSTEMS INFORMATION ANALYSIS CENTER

NOTABLE TECHNICAL INQUIRY

What information is readily available in regards to type classification of a specific low recoil gun system?

DSIAC staff reviewed titles and abstracts from a DTIC literature search, performed open source searches, and extracted excerpts from articles that discussed historical designations for low recoil gun systems. A bibliography of the top 25 DTIC articles that appeared to be most relevant to the... Read More

▶ SUBMIT YOUR TECHNICAL INQUIRY – 4 hours of research service for FREE

FEATURED NEWS

Mattis' Infantry Task Force: Righting 'A Generational Wrong'

Eight months ago, Defense Secretary Jim Mattis created the Close Combat Lethality Task Force to right a generational wrong. A retired Marine Corps infantryman himself, Mattis understood that America's close combat forces, consisting of less than 4% of those in uniform, had suffered more than 90% of American combat deaths since the end of World War II. His intent was to make our infantry formations dominant on tomorrow's battlefields. Most efforts at reforming the Pentagon are premised on the development and acquisition of things—guns, planes, ships, missiles , satellites, all at ever-increasing expense. **Read More**

MODEL OF THE MONTH

BlueMax6 – BlueMax6 is an aircraft flight dynamics, flight path generator, maneuver, mission, and aero-performance evaluation model. It provides high-fidelity air-vehicle dynamics and Time & Space Position Information (TSPI) for constructive and virtual modeling simulation and analysis.

Get this model!

VOICE FROM THE COMMUNITY

Jason Phillips, *Sandia National Laboratories, Energetics Characterization*
My organization is currently supporting energetic design/production efforts. This includes energetics formulation/synthesis, live component disassembly, surveillance, accelerated aging, and small-scale sensitivity testing. We also support other programs through the DoD, DoJ, and DHS. These can include improvised/homemade explosives, explosives detection, and render safe operations. One of the most interesting parts of my position is that I get detailed hands-on experience with an extensive variety of explosive components and materials. I also find my personal training and support of our military EOD and law enforcement personnel especially gratifying.

▶ Apply to be part of our network of over 1,000 subject matter experts.

UPCOMING EVENTS

International Armoured Vehicles 2019
21 January 2019 to 24 January 2019

Complex Active and Adaptive Material Systems: Exploiting the Functionality of Soft Materials
27 January 2019 to 1 February 2019

65th Reliability and Maintainability Symposium
28 January 2019 to 31 January 2019

Autonomous VTOL Technical Meeting & eVTOL Symposium 2019
28 January 2019 to 1 February 2019

▶ Want your event listed here? Let us know!

BULLETIN BOARD

Join the DSIAC SME Network!

DoDTechSpace is more than a collaboration tool

Introducing AFRL's T3 Transition Accelerator

The Joint Aircraft Survivability Program (JASP) is soliciting project proposals for its FY20 program

▶ Add your item to our board by contacting us.

DSIAC JOURNAL FALL 2018

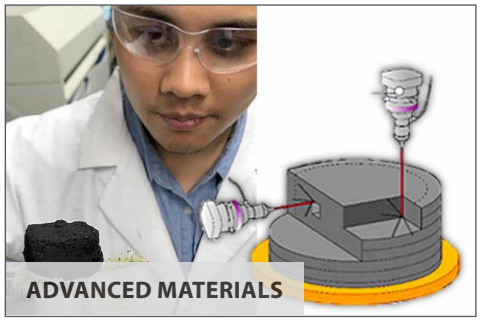
Fire Risks with Fiber-Reinforced Polymer (FRP) Composites

Also in This Issue:

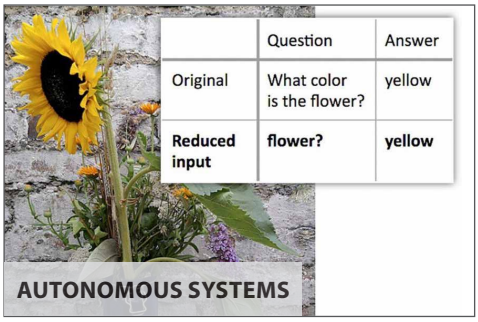
- Radio Frequency, Directed Energy Weapon Design Tool
- Optimizing Armament Systems with Artificial Intelligence and Machine Learning
- Corrosion Protection for Cost Savings on Pacific Bases

▶ Have an idea for a topic? Please contact us to write an article!

RECENT NEWS


ADVANCED MATERIALS

Sculpting With Graphene Foam



AUTONOMOUS SYSTEMS

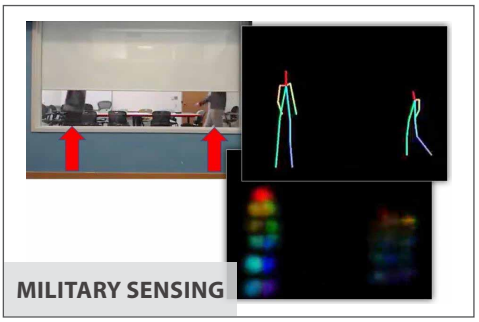
New Method Peeks Inside the "Black Box" of Artificial Intelligence


DIRECTED ENERGY

DARPA Taps Silent Falcon to Develop Midair, Laser-Based Drone Charging


ENERGETICS

TARDEC Pursues Advanced Power Generation


MILITARY SENSING

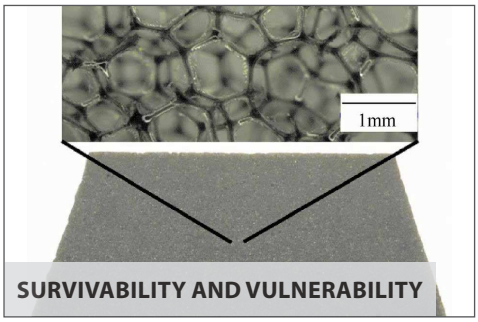
MIT's Artificial Intelligence System Can Detect People, Postures and Movements Through Walls

NON-LETHAL WEAPONS

Using Shotguns as Less-Lethal Weapons

RMQSI

The Army Wants Its Brigades to Be Able to Fight for an Entire Week Without Resupply



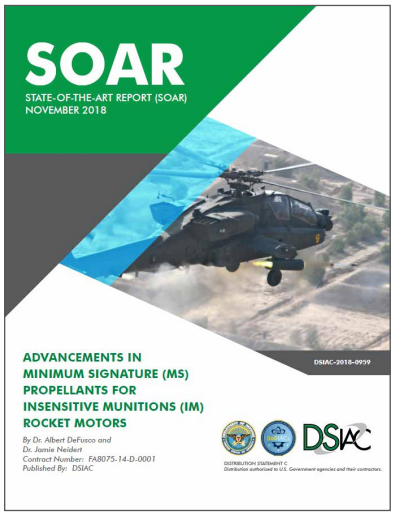
SURVIVABILITY AND VULNERABILITY

Experimental Study on Shock Wave Mitigation Capability of Polyurea and Shear Thickening Fluid Based Suspension Pads


WEAPON SYSTEMS

The Must-Haves of the Next Strategic Nuclear Bomber

NOW PUBLISHED! STATE OF THE ART REPORT



Advancements in Minimum Signature (MS) Propellants for Insensitive Munitions (IM) Rocket Motors

An extensive summary of contemporary research and development into MS rocket motor propellants is provided, with emphasis on achieving IM compliance. MS propellants have existed since the late 1800s and continue to progressively improve. Developing cast-cure formulations in the 1970s, as opposed to extruded compositions, has opened avenues for developing highly energetic compositions for advanced rockets in use today. However, high energy has led to high sensitivity, especially to shock and impact stimuli. The need for less-sensitive munitions and the advent of IM policies and requirements since the early 1980s have led to a wide range of research and development into reducing the sensitivity of MS rocket propellants. This report covers the development and testing of a variety of MS propellants occurring among many government laboratories and defense contractors over the past 30+ years. It summarizes propellant compositions and properties, while mainly focusing on methods for reducing shock sensitivity and achieving IM characteristics. Information and IM test data on formulations based on energetic binders and oxidizers are discussed, along with compositions that use less-sensitive new materials. Although significant progress has been realized, especially in providing less-sensitive propellants readied for qualification in new propulsion systems, strict compliance to all IM criteria has yet to be achieved. Insensitivity to high-velocity impact tests has been especially difficult to solve and has been achieved with limited compositions. Research continues in modifying existing materials and creating new materials which may aid in progressing toward less sensitive MS propellants for future applications. **Read More.**

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