

# Defense Systems

## DIGEST

13 AUGUST 2019 – THE LATEST FROM DEFENSE SYSTEMS INFORMATION ANALYSIS CENTER



### NOTABLE TECHNICAL INQUIRY

*Is there research regarding explosives bonding materials for thermobaric devices?*

A DSIAC subject matter expert (SME) with Johns Hopkins University specializing in thermobarics, Dr. Gregory Aranovich, researched patents and other information related to using boron compounds in thermobaric devices (TBXs) and fuel air explosives (FAEs). Based on his previous experience with thermobaric explosives and this research, he identified that unmanned aircraft systems have not... [Read More](#)

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### FEATURED NEWS

#### AFRL Achieves Record-setting Hypersonic Ground Test Milestone

An Air Force Research Laboratory (AFRL) and Air Force Test Center ground test team set a record for the highest thrust produced by an air-breathing hypersonic engine in Air Force history.

“AFRL, in conjunction with Arnold Engineering Development Complex (AEDC) and Northrop Grumman, achieved over 13,000 pounds of thrust from a scramjet engine during testing at Arnold Air Force Base,” said Todd Barhorst, AFRL aerospace engineer and lead for the Medium Scale Critical Components program.



The 18-foot-long Northrop Grumman engine endured a half hour of accumulated combustion time during the nine months of testing.

“The series of tests, ran in conjunction with AEDC and AFRL, on this fighter-engine sized scramjet was truly remarkable,” said Pat Nolan, vice president, missile products, Northrop Grumman. “The scramjet successfully ran across a range... [Read More](#)

**VOICE FROM THE COMMUNITY**



**Nicole Zander**, *Chemist, Polymers Branch, U.S. Army Research Laboratory*

My primary research interests are polymer processing, additive manufacturing, and nanofiber research in tissue engineering, antimicrobial materials, and filtration. My major focus is on recycling waste plastics and other materials into additive manufacturing feedstocks. I am part of a winning Marine Innovation Challenge team in which I worked on building a mobile laboratory that recycles plastics into filament for 3-D printing. I hold a B.A. in chemistry from St. Olaf College and a Ph.D. in analytical chemistry from the University of

Delaware, where I explored using electrospun nanofibers to control neurite outgrowth via protein chemistry and contact guidance.

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**UPCOMING EVENTS**

**Hypersonic Technology & Systems Conference (HTSC)**

26 August 2019 to 30 August 2019

**2019 IEEE 90<sup>th</sup> Vehicular Technology Conference (VTC2019-Fall)**

22 September 2019 to 25 September 2019

**22<sup>nd</sup> Annual Systems and Mission Engineering Conference**

21 October 2019 to 24 October 2019

**ISR & C2 Battle Management U.S. Conference**

5 November 2019 to 7 November 2019

► Want your event listed here? Let us know!

**SEEKING YOUR KNOWLEDGE**



What energy storage technologies can be used to power electric motors that drive rocket engine propellant pumps for the Artemis human landing system craft?

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**DSIAC JOURNAL SUMMER 2019**



**Disposal of Insensitive Munitions**

**Also in This Issue:**

- Computational and Experimental Characterization of an Improvised, Explosively Formed Penetrator
- Investigating Friction Stir Welding in Aluminum Hull Structures
- Additively Manufactured, Solvent-Loaded AP Composite Propellant – Printer Parameter Optimization
- A Multisensor System for Measuring the Light Output and Velocity of Live-Fired, Red Light-Emitting Pyrotechnic Tracers



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

RECENT NEWS



ADVANCED MATERIALS

**AFRL Investigating Space Weather Effects on Satellite Materials**



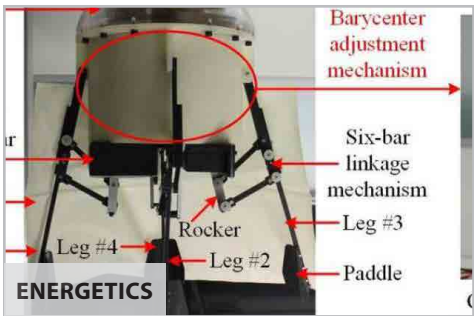
AUTONOMOUS SYSTEMS

**Army Tests Robot-Force Attack on Enemy "Tank Ditch, Minefield"**



DIRECTED ENERGY

**Air Force to Deploy Ground-Based Lasers in First Field Test of "Directed Energy" Weapon**



ENERGETICS

**A Novel Robotic Jellyfish Able to Perform 3-D Jet Propulsion and Maneuvers**



MILITARY SENSING

**Military Working to Make Its Autonomous Technology Smarter**



NON-LETHAL WEAPONS

**"Talking Lasers" That Beam Messages to Our Ears in the Works: Pentagon**



RMQSI

**Boeing Opens V-22 Osprey Tiltrotor Aircraft Factory**



SURVIVABILITY AND VULNERABILITY

**Navy Improves Helicopter-Fired Laser Weapons to Counter Mines**



WEAPON SYSTEMS

**New U.S./Japanese Missile Ready for New Generation of Threats**





# WEBINAR

## ENERGETIC MATERIALS ADDITIVE MANUFACTURING



August 27 | 12 p.m.

### Webinar: Energetic Materials Additive Manufacturing

Join us for a live webinar presentation on “Energetic Materials Additive Manufacturing.”

**Tuesday 27 August 2019 – 12:00 p.m. to 12:45 p.m. EDT**

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