



# Center for Energetic Concepts Development

*Influencing change to*  
***Energetics in America***

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# CECD

**CENTER FOR ENERGETIC CONCEPTS DEVELOPMENT**



DEPARTMENT OF MECHANICAL ENGINEERING  
A. JAMES CLARK SCHOOL OF ENGINEERING

## U OF MARYLAND VISION

Enhance its standing as a world class  
University...Unwavering commitment  
to Excellence.. Foster  
research...expand international  
Influence...address great and  
challenging problems...advancement  
of science and technology..

# UMD STATS

Ranked in top 20 of Public Universities in USA

26,000 Undergraduate Students

10,500 Graduate Students

3,500 International Students

3,000 Full time Faculty

\$1.6B Total Budget

\$400M Contracts and Grants

\$25k Tuition-Out of State

\$10k In State



## What is CECD?



A group established to foster continued advancements in energetics manufacturing and science, while educating the next generation of energetics experts.



# CECD ACTIVITIES

- R&D in Energetic Materials, Nanotechnology, Virtual Environments, Sensors, Explosive Testing, Prognostics, and New Ideas
- Graduate Education and Workforce Development
- Policy and Strategic Planning
- Personnel Exchange

Influencing change through education

# Energetics Professional Masters Program

## *CORE COURSES*

**ENPM 681 Shockwave Physics I** (fall 2010, fall 2007)

**ENPM 682 Shockwave Physics II** (spring 2011, spring 2008)

**ENPM 683 Chemistry of Energetic Materials** (summer 2010, fall 2008, fall 2006)

**ENME 672 Composite Materials** (spring 2010)

**ENME 707 Combustion & Reacting** (spring 2009, spring 2007)

## *ELECTIVES(Partial list)*

**ENPM 808E Introduction to MEMS** (fall 2008)

**ENPM 808X Rocket Propulsion** (fall 2009)

**ENCH 471 Particle Science and Technology**

**ENCH 490 Introduction to Polymer Science**

**ENPM 661 Introduction to the Structure of Materials**

**ENPM 662 Introductory Thermodynamics of Materials**

**ENME 672 Composite Materials**

Influencing through discussion

## Past CECD Sponsored Workshops

*Hong Kong Workshop on  
Energetics – Past and Present  
December 7, 2010*



*Mild Traumatic Brain Injury Workshop  
December 2009*



**DOD - DOE Operational Energy  
Needs & Capabilities Workshop  
June 23, 2010**

Influencing through discussion

## Upcoming CECD Sponsored Workshops

### **Army Synthesis of Advanced Energetic Materials - The Path Forward**

*April 3-5, 2011*

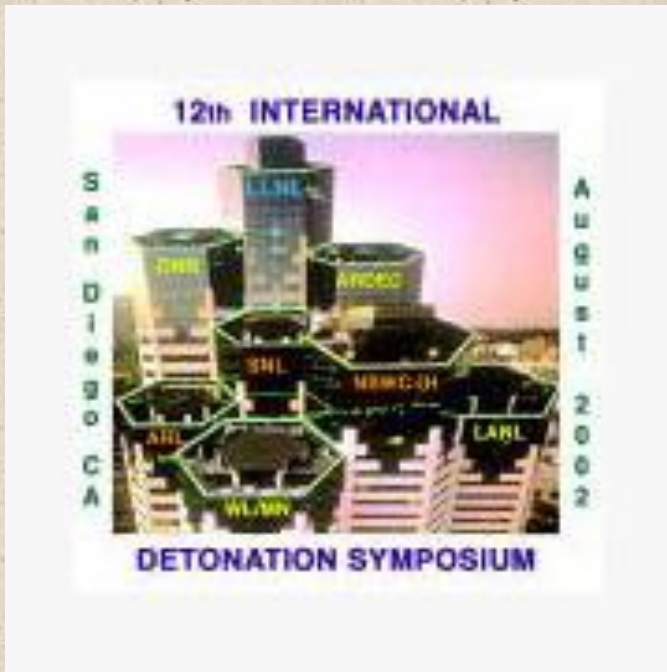
### **2<sup>nd</sup> Mild Traumatic Brain Injury Workshop**

*May 2011*



Influencing change through scholarly publications

# CECD editing Proceedings & Journals



Influencing change in DoD energy



# Defense Operational Energy Plans & Programs

***Professor James Short***

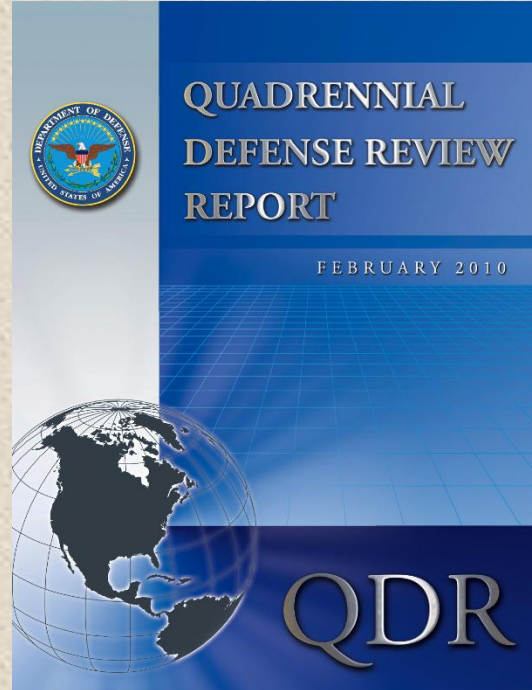
University of Maryland, Mechanical Engineering  
&

**Acting Deputy Director, Operational Energy Plans  
and Programs**

**Office of the Secretary of Defense  
December 2009 through June 2010**

Influencing change in DoD energy

Designed & organized the newly formed office of the Assistant Secretary of Defense for Operational Energy Plans & Program,



The QDR encourages the Military Services to be “a test bed to demonstrate and create a market for innovative energy efficiency and renewable energy technologies coming out of the private sector and DoD and Department of Energy laboratories.”

The Honorable Ms Sharon Burke, the Principal advisor to the Secretary of Defense regarding operational energy plans & programs, was confirmed by the Senate in June 2010



# Center for Energetic Concepts Development



# Center for Energetic Concepts Development

*Celebrating*  
**10**  
*Years  
of Achievement*  
**CECD**



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