

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

BUDGET ACTIVITY		PE NUMBER AND TITLE					
1 - Basic research		0601103A - University Research Initiatives					
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	76331	82416	76980	76364	77832	80701	85664
D55 University Research Initiative	63548	64431	76980	76364	77832	80701	85664
D58 URI ACTIVITIES (CA)	9878	13414					
D63 INST OF BIOENGINEERING AND NANOSCIENCE IN ADV MED							
D66 MEDICAL UNIVERSITY RESEARCH INITIATIVES (CA)	2905	4571					

A. Mission Description and Budget Item Justification: This project supports Army efforts in the Multidisciplinary University Research Initiative (MURI) program, the Defense University Research Instrumentation Program (DURIP), and the Presidential Early Career Awards for Scientists and Engineers (PECASE) program by funding basic research in a wide range of scientific and engineering disciplines pertinent to maintaining the US land combat technology superiority. Army MURI program efforts involve teams of researchers investigating high-priority; transformational topics that intersect more than one traditional technical discipline (e.g. Intelligent Luminescence for Communication, Display, and Identification). For many complex problems, this multidisciplinary approach serves to accelerate research progress and expedite transition of results to application. The DURIP provides funds to acquire major research equipment to augment current, or devise new, research capabilities in support of Army transformational research. The PECASE program funds single-investigator research efforts performed by outstanding academic scientists and engineers early in their independent research careers. Project D58 and D66 include funding for specific congressional interest initiatives. The cited work is consistent with the Department of Defense Research and Engineering Strategic Plan, the Army Science and Technology Master Plan, the Army Modernization Strategy, and the Army Posture Statement. Work on this project is performed extramurally by the Army Research Laboratory (ARL).

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<u>B. Program Change Summary</u>	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008/2009)	80841	64843	66781
Current BES/President's Budget (FY 2009)	76331	82416	76980
Total Adjustments	-4510	17573	10199
Congressional Program Reductions		-527	
Congressional Rescissions			
Congressional Increases		18100	
Reprogrammings	-2236		
SBIR/STTR Transfer	-2274		
Adjustments to Budget Years			10199

FY09 was increased to support the basic research in support of the Multidisciplinary University Research Initiative (MURI).

Nine FY08 congressional adds totaling \$18100 were added to this PE.

- (\$800) Low Temperature Vehicle Performance Research
- (\$900) Imaging Research Center
- (\$1000) Hi-tech Eyes for the Battlefield
- (\$1200) Massively Broadband Wireless Integrated Circuits
- (\$1600) Laboratory for Engineered Human Protection (LEAP)
- (\$8000) University Research Initiatives Program Increase
- (\$1000) Consortium for Bone and Tissue Repair and Regeneration
- (\$1600) Burn and Shock Trauma Institute
- (\$2000) Nanomedical Technologies Research

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BUDGET ACTIVITY 1 - Basic research	PE NUMBER AND TITLE 0601103A - University Research Initiatives					PROJECT D55	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
D55 University Research Initiative	63548	64431	76980	76364	77832	80701	85664

A. Mission Description and Budget Item Justification: This project supports the Multidisciplinary University Research Initiative (MURI) and the Defense University Research Instrumentation Program (DURIP). The MURI program funds university basic research in a wide range of scientific and engineering disciplines pertinent to maintaining the US land combat technology superiority. Army MURI efforts involve teams of researchers investigating high-priority; transformational topics that intersect more than one traditional technical discipline (e.g. Intelligent Luminescence for Communication, Display, and Identification). For many complex problems, this multidisciplinary approach serves to accelerate research progress and expedite transition of results to application. The DURIP provides funds to acquire major research equipment to augment current, or devise new, research capabilities in support of Army transformational research. This program element also supports Presidential Early Career Awards for Scientists and Engineers (PECASE). The PECASE program funds single-investigator research efforts performed by outstanding academic scientists and engineers early in their independent research careers. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy and the Army Science and Technology Master Plan. Work on this project is performed extramurally by the Army Research Laboratory (ARL).

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
MURI: In FY07, supported MURI awards made in prior years and made eight new awards. Topic areas for the FY07 MURI research competition were Biologically Synthesized Quantum Electronic Systems; Attosecond Subwavelength Optical Pulses; Designing and Prescribing an Efficient Natural-like Language for Bots; Ionic Liquid Containing Polymeric Materials; Self-healing Polymer Composites through Mechanochemical Transduction; Engineering of Phase Transforming Electromagnetic-Optical Materials; Robust and Resilient Tactical Mobile Ad-Hoc Network (MANET); Urban Sensor Network Structure For Data Fusion; Dynamic Modeling of 3D Urban Terrain; and Wide-band Gap Semiconductor Based Sensing for Detection and Response to Weapons of Mass Destruction Threats. In FY08 and FY09, continue to support MURI awards made in prior years and initiate new awards in research critical to the Army's future operating capabilities. Increased resources in FY09 will permit the awarding of several additional critical MURI research topics.	51287	51534	65650
PECASE: Supported PECASE investigators started in prior years. In FY07, selected two new investigators. In FY08, select two new investigators and in FY09 will select two new investigators.	958	992	998
DURIP. In FY07, under the Defense University Research Instrumentation Program (DURIP) continued acquisition of instrumentation that enhanced the current research infrastructure and provided new research capabilities to enable scientific exploration and discovery in promising areas vital to Army transformational technologies. In FY08, DURIP continues to fund competitive grants for instrumentation and in FY09 will continue to fund competitive grants for research instrumentation to enhance universities' capabilities to conduct world class research critical to Army transformation.	11303	10102	10332
Small Business Innovative Research/Small Business Technology Transfer Programs		1803	
Total	63548	64431	76980