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Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
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APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE							
1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 1: <i>Basic Research</i>					PE 0601103N: <i>University Research Initiatives</i>							
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	126.836	113.690	112.617	-	112.617	113.908	116.196	118.764	120.901	Continuing	Continuing
0000: <i>University Research Initiatives</i>	0.000	106.836	113.690	112.617	-	112.617	113.908	116.196	118.764	120.901	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.000	20.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	20.000

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program includes support for multidisciplinary basic research in a wide range of scientific and engineering disciplines that enable the U.S. Navy to maintain technological superiority, and for university research infrastructure to acquire research instrumentation needed to maintain and improve the quality of university research important to the Navy. Multidisciplinary University Research Initiative (MURI) efforts involve teams of researchers investigating high priority topics and opportunities that intersect more than one traditional technical discipline. For many military problems this multidisciplinary approach serves to stimulate innovation, accelerate research progress and expedite transition of results into Naval applications. The Defense University Research Instrumentation Program (DURIP) supports university research infrastructure essential to high quality, Navy-relevant research. The instrumentation program complements other Navy research programs by supporting the purchase of high cost research instrumentation that is necessary to carry out cutting-edge research. The program supports Presidential Early Career Awards for Scientists and Engineers (PECASE), single investigator research efforts performed by outstanding academic scientists and engineers early in their research careers. This program provides the knowledge base, scientific concepts, and technological advances for the maintenance of Naval power and national security.

Due to the number of efforts in this PE, the programs described herein are representative of the work included in this PE.

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B. Program Change Summary (\$ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	133.157	113.690	112.636	-	112.636
Current President's Budget	126.836	113.690	112.617	-	112.617
Total Adjustments	-6.321	0.000	-0.019	-	-0.019
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.703	0.000			
• SBIR/STTR Transfer	-3.617	0.000			
• Program Adjustments	0.000	0.000	-0.019	-	-0.019
• Rate/Misc Adjustments	-0.001	0.000	0.000	-	0.000
<u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u>					
Project: 9999: <i>Congressional Adds</i>					FY 2012
Congressional Add: <i>University Research Program (Cong)</i>					FY 2013
					20.000
					-
Congressional Add Subtotals for Project: 9999					20.000
					0.000
Congressional Add Totals for all Projects					20.000
					0.000
<u>Change Summary Explanation</u>					
Technical: N/A					
Schedule: N/A					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy									DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 1: Basic Research					R-1 ITEM NOMENCLATURE PE 0601103N: University Research Initiatives				PROJECT 0000: University Research Initiatives			
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0000: University Research Initiatives	0.000	106.836	113.690	112.617	-	112.617	113.908	116.196	118.764	120.901	Continuing	Continuing
# FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012												
## The FY 2014 OCO Request will be submitted at a later date												
A. Mission Description and Budget Item Justification												
This project includes support for multidisciplinary basic research in a wide range of scientific and engineering disciplines that are important for maintaining the technological superiority of the U.S. Navy, and for university research infrastructure to acquire instrumentation needed to maintain and improve the quality of university research important to the Navy. MURI efforts involve teams of researchers investigating high priority topics that intersect more than one traditional technical discipline. For many military problems this multidisciplinary approach serves to stimulate innovation, accelerate research progress, and expedite transition of results into Naval applications. The DURIP project supports university research infrastructure essential to high quality, Navy-relevant research. The instrumentation project complements other Navy research programs by supporting the purchase of high cost research instrumentation that is necessary to carry out cutting-edge research. The PECASE project supports single-investigator research efforts performed by outstanding academic scientists and engineers early in their research careers. This project provides the knowledge base, scientific concepts, and technological advances for the maintenance of Naval power and national security.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2012	FY 2013	FY 2014	
Title: DEFENSE UNIVERSITY RESEARCH INSTRUMENTATION PROGRAM (DURIP)									17.239	19.438	22.226	
Description: DURIP funds are provided to universities to purchase relatively high cost research instrumentation that is normally not included in single-investigator type research grants. Individual grants range from \$50K to \$1M. The DURIP program is an Office of the Secretary of Defense (OSD) interest item and OSD directs that funding for the DURIP efforts be awarded after OSD announces the awardees, which typically takes place towards the second half of the fiscal year. In turn, universities need to purchase the instrumentation and take delivery before any billings are generated. It frequently takes several months for delivery and billing to be completed.												

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2012	FY 2013
FY 2012 program increases provide for an increased number of grants. In past years, more outstanding proposals have been received than could be funded.			
FY 2014 program increases provide for an increased number of grants. In past years, more outstanding proposals have been received than could be funded.			
FY 2012 Accomplishments: - Continued competition for research instrumentation awards to universities.			
FY 2013 Plans: - Continue all efforts of FY 2012.			
FY 2014 Plans: - Continue all efforts of FY 2013.			
Title: MULTIDISCIPLINARY UNIVERSITY RESEARCH INITIATIVE (MURI)		84.222	88.193
Description: Research efforts include high priority topics that intersect more than one traditional discipline. MURI topics are selected to address Naval Science and Technology (S&T) Focus Areas as described in the Naval S&T Strategic Plan. The MURI program is an OSD interest item and OSD directs that funding for the MURI efforts be awarded after OSD announces the awardees, which typically takes place towards the second half of the fiscal year. Since the MURI program funds academic researchers, execution of the efforts typically ramps up during the summer academic break months. MURI projects make significant contributions to Navy and DoD objectives by; speeding up scientific programs by cross-fertilization of ideas, hastening the transition of basic research to practical applications, and training students in cross-disciplinary approaches to science and engineering research of importance to DoD.			82.017
FY 2014 decreased in funds to accommodate the increase in the number of proposals for Defense University Research Instrumentation Program (DURIP).			
FY 2012 Accomplishments: - Continued competition for new MURI awards to address selected high priority Naval S&T areas, transformational initiatives, and grand challenges, including strategically important DoD research areas. Approximately eight high priority research topics will be identified for publication in a BAA to solicit proposals. - Continued MURI projects begun in prior years.			
FY 2013 Plans:			

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2012	FY 2013	FY 2014
- Continue all efforts of FY 2012.					
FY 2014 Plans: - Continue all efforts of FY 2013.					
Title: PRESIDENTIAL EARLY CAREER AWARDS (PECASE) Description: PECASE awards are made to academic scientists early in their research careers for extremely prestigious, single-investigator research in areas of vital importance to the Navy. Awards provide national recognition and research grants of up to \$200K per year for five years. OSD, with policy and oversight responsibility for the PECASE program, directed that the number of PECASE awards be set at four new awards per year. FY 2012 to FY 2013 funding increase reflects need to cover 15 PECASE awardees chosen in FY 2008. FY 2013 to FY 2014 funding increase reflects need to cover nine more PECASE awardees chosen in FY 2009. FY 2012 Accomplishments: - Selected six outstanding university researchers to receive the five-year PECASE research award to conduct research of importance to the Navy. - Continued PECASE programs begun in earlier years. FY 2013 Plans: - Continue all efforts of FY 2012, and award four new awards per OSD guidance. FY 2014 Plans: - Continue all efforts of FY 2013, and award four new awards per OSD guidance.			5.375	6.059	8.374
Accomplishments/Planned Programs Subtotals			106.836	113.690	112.617
C. Other Program Funding Summary (\$ in Millions) N/A					
Remarks					
D. Acquisition Strategy N/A					
E. Performance Metrics This University Research Initiative seeks to improve the quality of defense research conducted by universities and supports the education of engineers and scientists					

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<p>in disciplines critical to national defense needs. The initiative is a collection of specialized research programs performed by academic research institutions. Individual project metrics are tailored to the needs of specific applied research and advanced development programs. Example metrics include extending the life of Thermal Barrier Coatings for transition to the Enterprise and Platform Enablers Future Naval Capability program. It is projected that the life time of Thermal Barrier Coating on Turbine Blades can be doubled. The National Research Council of the National Academies of Science and Engineering's Congressionally directed "Assessment of Department of Defense Basic Research" concluded that the DoD is managing its basic research program effectively.</p>		

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COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013[#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.000	20.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	20.000
[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012 ^{##} The FY 2014 OCO Request will be submitted at a later date												
A. Mission Description and Budget Item Justification This project shows Congressional Adds to this Program Element.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2012	FY 2013			
Congressional Add: University Research Program (Cong)								20.000	-			
FY 2012 Accomplishments: Facilitate waivers to augment limits for Defense University Research Instrumentation Program (DURIP) competition proposals for the acquisition of major equipment to augment current or develop new research capabilities in support of defense relevant research, and to increase all competitive based university research programs.												
Congressional Adds Subtotals								20.000	0.000			
C. Other Program Funding Summary (\$ in Millions) N/A												
Remarks												
D. Acquisition Strategy N/A												
E. Performance Metrics This project shows Congressional Adds to this Program Element.												