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|-------------------------------------------------------------------------------------------------------------------|-------------|---------|---------|--------------|------------------------------------------------------------------------------------|---------------|---------|---------|---------|------------------|------------------|------------|
| Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force                                                   |             |         |         |              |                                                                                    |               |         |         |         | Date: March 2014 |                  |            |
| Appropriation/Budget Activity<br>3600: Research, Development, Test & Evaluation, Air Force I BA 1: Basic Research |             |         |         |              | R-1 Program Element (Number/Name)<br>PE 0601103F I University Research Initiatives |               |         |         |         |                  |                  |            |
| COST (\$ in Millions)                                                                                             | Prior Years | FY 2013 | FY 2014 | FY 2015 Base | FY 2015 OCO #                                                                      | FY 2015 Total | FY 2016 | FY 2017 | FY 2018 | FY 2019          | Cost To Complete | Total Cost |
| Total Program Element                                                                                             | -           | 125.398 | 138.333 | 127.079      | -                                                                                  | 127.079       | 145.695 | 147.395 | 150.049 | 152.328          | Continuing       | Continuing |
| 615094: University Research Initiatives                                                                           | -           | 125.398 | 138.333 | 127.079      | -                                                                                  | 127.079       | 145.695 | 147.395 | 150.049 | 152.328          | Continuing       | Continuing |

# The FY 2015 OCO Request will be submitted at a later date.

**A. Mission Description and Budget Item Justification**

This program supports defense-related basic research in a wide range of scientific and engineering disciplines relevant to maintaining U.S. military technology superiority. Research topics include, but are not limited to, transformational and high priority technologies such as nanotechnology, sensor networks, intelligence information fusion, smart materials and structures, efficient energy and power conversion, and high-energy materials for propulsion and control. The program also enhances and promotes the education of U.S. scientists and engineers in disciplines critical to maintaining, advancing, and enabling future U.S. defense technologies. For example, the National Defense Science and Engineering Graduate (NDSEG) program awards fellowships to train U.S citizens in science and engineering disciplines of military importance under a joint tri-Service and Office of the Assistant Secretary of Defense for Research and Engineering competition. Finally, this program assists universities in establishing superior instrumentation capabilities needed to improve the quality of defense-related research and education. A fundamental component of this program is the recognition that future technologies and technology exploitations require highly coordinated and concerted multi- and inter-disciplinary efforts. Efforts in this program have been coordinated through the Department of Defense (DoD) Science and Technology (S&T) Executive Committee process to harmonize efforts and eliminate duplication. This program is in Budget Activity 1, Basic Research, because it funds basic scientific study and experimentation.

|                                                   |                |                |                     |                    |                      |
|---------------------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|
| <b>B. Program Change Summary (\$ in Millions)</b> | <b>FY 2013</b> | <b>FY 2014</b> | <b>FY 2015 Base</b> | <b>FY 2015 OCO</b> | <b>FY 2015 Total</b> |
| Previous President's Budget                       | 141.153        | 138.333        | 140.738             | -                  | 140.738              |
| Current President's Budget                        | 125.398        | 138.333        | 127.079             | -                  | 127.079              |
| Total Adjustments                                 | -15.755        | -              | -13.659             | -                  | -13.659              |
| • Congressional General Reductions                | -0.186         | -              |                     |                    |                      |
| • Congressional Directed Reductions               | -              | -              |                     |                    |                      |
| • Congressional Rescissions                       | -              | -              |                     |                    |                      |
| • Congressional Adds                              | -              | -              |                     |                    |                      |
| • Congressional Directed Transfers                | -              | -              |                     |                    |                      |
| • Reprogrammings                                  | -              | -              |                     |                    |                      |
| • SBIR/STTR Transfer                              | -3.973         | -              |                     |                    |                      |
| • Other Adjustments                               | -11.596        | -              | -13.659             | -                  | -13.659              |

**Change Summary Explanation**

Decrease in FY13 Other Adjustments was due to Sequestration.

Decrease in FY15 is due to higher DOD priorities.

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| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2015 Air Force                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | <b>Date:</b> March 2014                                                                          |                |                |
| <b>Appropriation/Budget Activity</b><br>3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 1: Basic Research</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0601103F <i>I University Research Initiatives</i> |                |                |
| <b>C. Accomplishments/Planned Programs (\$ in Millions)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | <b>FY 2013</b>                                                                                   | <b>FY 2014</b> | <b>FY 2015</b> |
| <b>Title:</b> Multidisciplinary University Research Initiative<br><br><b>Description:</b> Promote fundamental, multi- and interdisciplinary science and engineering research projects involving multiple principle investigators.<br><br><b>FY 2013 Accomplishments:</b><br>Funded competitive research grants at U.S. universities that focus on significantly expanding the basic knowledge of Air Force-relevant science and technology areas, not normally achievable in smaller funded, single investigator awards. Awarded seven grants totaling \$67.5M involving 32 academic institutions. Supported and recognized superior academic researchers in the early stages of their careers through the Presidential Early Career Award for Scientists and Engineers (PECASE) program. Continued funding of multi-disciplinary programs initially awarded in prior years.<br><br><b>FY 2014 Plans:</b><br>Continue funding competitive research grants at U.S. universities that focus on significantly expanding the basic knowledge of Air Force-relevant science and technology areas, not normally achievable in smaller funded, single investigator awards. Support and recognize superior academic researchers in the early stages of their careers through the PECASE program. Continue funding of multi-disciplinary programs initially awarded in prior years.<br><br><b>FY 2015 Plans:</b><br>Continue funding competitive research grants at U.S. universities that focus on significantly expanding the basic knowledge of Air Force-relevant science and technology areas, not normally achievable in smaller funded, single investigator awards. Support and recognize superior academic researchers in the early stages of their careers through the PECASE program. Continue funding of multi-disciplinary programs initially awarded in prior years. |  | 76.248                                                                                           | 76.776         | 70.530         |
| <b>Title:</b> Science and Engineering Education<br><br><b>Description:</b> Support post-graduate, graduate, and undergraduate education in science and engineering disciplines at U.S. universities.<br><br><b>FY 2013 Accomplishments:</b><br>Awarded highly competitive NDSEG fellowships to 181 scholars. Continued to support competitive awards for graduate and undergraduate research experiences, including those established under the Awards to Stimulate and Support Undergraduate Research Experiences (ASSURE) program. Continued funding for awards initiated under prior year DoD programs.<br><br><b>FY 2014 Plans:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | 36.277                                                                                           | 45.927         | 42.190         |

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| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2015 Air Force                                                                                                                                                                                                                                                   |  | <b>Date:</b> March 2014                                                                          |                |                |
| <b>Appropriation/Budget Activity</b><br>3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 1: Basic Research</i>                                                                                                                                                                                          |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0601103F / <i>University Research Initiatives</i> |                |                |
| <b>C. Accomplishments/Planned Programs (\$ in Millions)</b>                                                                                                                                                                                                                                                                  |  | <b>FY 2013</b>                                                                                   | <b>FY 2014</b> | <b>FY 2015</b> |
| Continue to award highly competitive NDSEG fellowships. Continue to support competitive awards for graduate and undergraduate research experiences, including those established under the ASSURE program. Continue funding for awards initiated under prior year DoD programs.                                               |  |                                                                                                  |                |                |
| <b>FY 2015 Plans:</b><br>Continue to award highly competitive NDSEG fellowships. Continue to support competitive awards for graduate and undergraduate research experiences, including those established under the ASSURE program. Continue funding for awards initiated under prior year DoD programs.                      |  |                                                                                                  |                |                |
| <b>Title:</b> Research Instrumentation                                                                                                                                                                                                                                                                                       |  |                                                                                                  |                |                |
| <b>Description:</b> Enhance scientific and engineering research through advanced education infrastructure and instrumentation at U.S. universities.                                                                                                                                                                          |  |                                                                                                  |                |                |
| <b>FY 2013 Accomplishments:</b><br>Awarded 29 grants totaling \$12.7M on a competitive basis under the Defense University Research Instrumentation Program (DURIP) to 26 U.S. universities to acquire state-of-the-art, high technology instrumentation and infrastructure to enhance research and educational capabilities. |  |                                                                                                  |                |                |
| <b>FY 2014 Plans:</b><br>Award grants on a competitive basis under the DURIP to U.S. universities to acquire state-of-the-art, high technology instrumentation and infrastructure to enhance research and educational capabilities.                                                                                          |  |                                                                                                  |                |                |
| <b>FY 2015 Plans:</b><br>Continue to award grants on a competitive basis under the DURIP to U.S. universities to acquire state-of-the-art, high technology instrumentation and infrastructure to enhance research and educational capabilities.                                                                              |  |                                                                                                  |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>                                                                                                                                                                                                                                                                            |  | 12.873                                                                                           | 15.630         | 14.359         |
| <b>D. Other Program Funding Summary (\$ in Millions)</b><br>N/A                                                                                                                                                                                                                                                              |  |                                                                                                  |                |                |
| <b>Remarks</b>                                                                                                                                                                                                                                                                                                               |  |                                                                                                  |                |                |
| <b>E. Acquisition Strategy</b><br>N/A                                                                                                                                                                                                                                                                                        |  |                                                                                                  |                |                |

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force                                                                                                                                                                                                                     |                                                                                                  | Date: March 2014 |
| <b>Appropriation/Budget Activity</b><br>3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> / BA 1: <i>Basic Research</i>                                                                                                                                          | <b>R-1 Program Element (Number/Name)</b><br>PE 0601103F / <i>University Research Initiatives</i> |                  |
| <b>F. Performance Metrics</b><br>Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission. |                                                                                                  |                  |