Air Force Institute of Technology
Research Report 2001

Period of Report: 1 October 2000 to 30 September 2001

Graduate School of Engineering and Management

GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

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   (937) 255-3633  
   DSN 785-3633    
   afit.enrsta@afit.edu

or visit the AFIT website: www.afit.edu
Air Force Institute of Technology
Research Report 2001
Foreword

The Graduate School of Engineering and Management at the Air Force Institute of Technology (AFIT) provides responsive, defense focused graduate education and research to help sustain the technological supremacy of the United States Air Force (USAF). AFIT maintains close affiliations with USAF research organizations and operational communities, Department of Defense (DoD) agencies and premier graduate education institutions to ensure continued relevance and high quality of our academic and research programs. AFIT’s unique focus provides an outstanding environment for educating future managers and engineers in disciplines critical to anticipated defense needs.

Research experience is an essential element of a quality technical education, providing both in-depth knowledge and broadly applicable critical thinking skills that will be used throughout a graduate’s career. In addition to delivering long-term educational advantages, AFIT strives to ensure that the research program provides immediate benefits to the USAF and DoD. AFIT also cooperates with commercial enterprises to ensure timely transfer of new technology to US industry whenever appropriate. AFIT welcomes new opportunities to engage in research projects that are of mutual interest to our customers, faculty, and students.

This Research Report is prepared annually to report on the significant contributions of this institution, to solicit continued involvement and support from Air Force laboratories and DoD agencies, and to encourage new sponsors to participate in AFIT’s research program.

MICHAEL L. HEIL, Colonel, USAF
Commandant
Air Force Institute of Technology

ROBERT A. CALICO, JR.
Dean, Graduate School of Engineering & Management
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1. INTRODUCTION

1.1 OVERVIEW

This Research Report presents the FY01 research statistics and contributions of the Graduate School of Engineering and Management (EN) at AFIT. AFIT research interests and faculty expertise cover a broad spectrum of technical areas related to USAF needs, as reflected by the range of topics addressed in the faculty and student publications listed in this report. In nearly all cases, the research work reported herein is directly sponsored by one or more USAF or DoD agencies.

AFIT welcomes the opportunity to conduct research on additional topics of interest to the USAF and other DoD organizations, when adequate manpower and financial resources are available and/or provided by a sponsor. In addition, AFIT provides research collaboration and technology transfer benefits to the public through Cooperative Research and Development Agreements (CRADAs). Interested individuals may discuss ideas for new research collaborations, potential CRADAs, or research proposals with individual faculty using the contact information in the Appendix.

Additional information on the research programs at AFIT may also be found on the research web home page at [http://en.afit.edu/enr/](http://en.afit.edu/enr/) The Office of Research and Consulting, Graduate School of Engineering and Management, points of contact are either Dr. Heidi R. Ries, PhD, Associate Dean for Research, (937) 255-3636, ext 4544 (DSN: 785-3636, ext 4544), email afit.enrstast@afit.edu or Mr. Gary M. Koenig, PE, Research Grants Engineer, (937) 255-3636, ext 4546 (DSN: 785-3636, ext 4546), email afit.enrstast@afit.edu

1.2 THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT RESEARCH COLLABORATION

AFIT offers master’s and doctoral programs in a variety of disciplines through six departments: the Department of Mathematics and Statistics (ENC), the Department of Electrical and Computer Engineering (ENG), the Department of Engineering Physics (ENP), the Department of Operational Sciences (ENS), the Department of Systems and Engineering Management (ENV), and the Department of Aeronautics and Astronautics (ENY). In all these disciplines, research is an integral component of graduate education, developing an individual student’s skills and providing new knowledge of interest to many.

AFIT sends out an annual Research Activities mailings in an effort to involve sponsor organizations in research and education. Over 300 responses were received last year from the Research Activities mailing, and approximately 5% resulted in research projects. The departments invite research collaboration in their research specialties.

The Department of Mathematics and Statistics invites MS theses suggestions and topics for the following research specialties:

- **Applied Mathematics**
- **Partial Differential Equations**
- **Statistical Analysis**
- **Numerical Analysis**

The Department of Electrical and Computer Engineering invites research topic suggestions and topics for the Electrical Engineering, Computer Engineering and Computer Science programs. The following research specialties are covered by the Department:

- **Advanced Imaging and Information Processing**
- **Communications/Networks**
- **Electromagnetics/Low Observable (Stealth)**
- **Evolutionary Algorithms**
- **Guidance, Navigation and Control**
- **Information Systems, Security & Assurance**
- **Micro Electromechanical Systems**
- **Parallel/Distributed Processing**
- **Software and Information Engineering, Visualization, and Exploration**
The Department of Engineering Physics invites research topic proposals for the Engineering Physics, Nuclear Engineering, Electro-Optics (Electro-Optics shared between Electrical Engineering and Engineering Physics), Materials Science (Shared between Aeronautical Engineering and Engineering Physics), and Meteorology programs. The areas covered by these programs include:

**Atmospheric Science**
**Electronic and Photonic Materials**
**Modeling and Simulation**
**Remote Sensing & Signature Analysis**

**Counterproliferation**
**Lasers and Electro-Optics**
**Nuclear Weapons and Effects**
**Space Weather**

The Department of Operational Sciences invites research topics within the areas of operations research and logistics management. The following research specialties are covered by the Department:

**Campaign Planning and Execution**
**Information Operations/Information Warfare**
**Operational Problems and Heuristic Modeling**
**Transportation and Strategic Mobility**

**Decision and Risk Analysis**
**Operational Modeling and Simulation**
**Stochastic Systems Analysis**
**Supply Chain Management**

The Department of Systems and Engineering Management is seeking research topic proposals for the Engineering and Environmental Management, Acquisition Management, and Information Resource/Systems Management programs. The following research specialties are covered by the Department:

**Applied Environmental Sciences**
**Cost Analysis**
**Human Resource Management**
**Information Resource Management**
**Systems Management**

**Contract Management**
**Environmental Systems Analysis and Management**
**Quantitative Decision Making**
**Strategic Purchasing**

The Department of Aeronautics and Astronautics invites research collaboration proposals for the Aeronautical, Astronautical and Systems Engineering programs. The Department covers the following research specialties:

**Computational Fluid Dynamics**
**Materials and Structural Analysis**
**Systems Engineering**

**Dynamics and Control**
**Propulsion Systems**

If you would like to collaborate with AFIT on research, here are some ideas:

- Look through the credentials and interests of the AFIT faculty members at Appendix A. Match your areas of interest with the research interests of one or more faculty.

- Read through the list of recent graduates’ theses titles in this report. You may find one or more AFIT Faculty Advisors who have dealt with a topic in your interest area.

- Contact a faculty member to discuss your idea for a research collaboration. A topic that has strong faculty endorsement and support is much more likely to be chosen by the students than one that lacks faculty advocacy. Topics that fall outside the collective areas of faculty competence cannot be approved, even if chosen. For maximum effectiveness all around, please talk to AFIT faculty before you submit a research suggestion. The faculty member’s phone number is found in the Appendix A of this report.

- After talking to an AFIT faculty member, prepare and send your research collaboration proposal as soon as possible. Use the following sample proposal format on the following page, or make up your own. Send your proposal to the faculty member, to the department, or to AFIT/ENR, Bldg 640, 2950 P St., Wright-Patterson AFB OH 45433-7765 or email us at afit.enrsta@afit.edu.
**PROPOSED RESEARCH TOPIC FORMAT**

1. **RESEARCH TOPIC:** Secure Optical Fiber Links Based on Chaotic Cryptography

2. **INDIVIDUAL SPONSOR:** Dr. Mary Jones, AFRL/XN (DSN: 123-4567)
   1234 Casimir Creek Road
   WPAFB OH 45433-5632

3. **AFIT FACULTY CONTACTED:** Lt Col Tom P. Smith, AFIT/ENG

4. **BACKGROUND/PROBLEM:** The output emission power of semiconductor laser diodes is extremely stable under normal operating conditions for standard device designs. It is, however, possible to design and operate devices in unstable, chaotic regimes. Secure optical communication systems based on standard encryption techniques are essential to current military operations. When combined with new solid-state chaotic light and detection sources, the ability to crack the codes of intercepted communications is, for all practical purposes zero. Arrays of low-cost, high-efficiency, robust microlaser diodes are ideal for this secure communication application.

5. **OBJECTIVE/APPROACH:**
   a. Develop numerical models of chaotic microlasers
   b. Develop time-based encryption algorithms
   c. Design and fabricate arrays of chaotic microlasers
   d. Characterize the device and system performance

6. **RESOURCE REQUIREMENTS:**
   a. Minimum computational requirement: Sun Microsystems Sparc2 or equivalent
   b. Clean room for device fabrication
   c. Photonics measurement equipment for device and system characterization

7. **REFERENCES:** None.
1.3 RESEARCH ASSESSMENT QUESTIONNAIRE RESULTS

An AFIT Research Assessment Questionnaire, shown on the following page, was sent to each sponsor of a master's thesis and doctoral dissertation project during FY 2001 to determine the projects contribution, significance and cost avoidance. Detailed results of the questions asked are shown in Table 1.1. The data in this table are based on 63 questionnaires returned out of the 205 questionnaires mailed.

Table 1.1: Sponsor Assessment of AFIT Research

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>EN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did this research contribute to a current Air Force/DoD project? (Yes answers)</td>
<td>97%</td>
</tr>
<tr>
<td>The thesis work was:</td>
<td></td>
</tr>
<tr>
<td>Highly significant</td>
<td>30%</td>
</tr>
<tr>
<td>Significant</td>
<td>55%</td>
</tr>
<tr>
<td>Slightly significant</td>
<td>13%</td>
</tr>
<tr>
<td>Not significant</td>
<td>2%</td>
</tr>
<tr>
<td>Average man-years of effort saved by the sponsors.</td>
<td>1.05</td>
</tr>
<tr>
<td>Average cost avoided per thesis/dissertation by the sponsors.</td>
<td>$114,334</td>
</tr>
<tr>
<td>Total cost avoided for all theses and dissertations sponsored</td>
<td>$23,438,470</td>
</tr>
<tr>
<td>Rank of respondents</td>
<td></td>
</tr>
<tr>
<td>Colonel (GM-15)</td>
<td>29%</td>
</tr>
<tr>
<td>Lt Col (GM-14)</td>
<td>40%</td>
</tr>
<tr>
<td>Major (GM-13)</td>
<td>21%</td>
</tr>
<tr>
<td>Captain (GS-12)</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>0%</td>
</tr>
</tbody>
</table>
RESEARCH ASSESSMENT QUESTIONNAIRE

TO:

Thank you for sponsoring the AFIT thesis or dissertation listed below. AFIT is working hard to keep its research focused on defense technologies of interest to the Air Force and to the nation.

Title:

Student Author:     Designator:

Faculty Advisor:

Please help us determine the value and contribution of this research to your organization’s mission by answering the questions below:

1. Did this research contribute to a current task or goal of interest to your organization?      Y / N
2. Would you have completed this work if AFIT had not done it?      Y / N
3. Regardless of your answers above, how would you rate this work?                
   Highly significant
   Significant
   Slightly significant
   No significance
4. If AFIT had not done this work, please estimate what it would have cost your organization to perform it, either by using in-house resources or by contract. *Man-Years _____ $____________

   *Please note that typically an MS thesis requires 0.5MY of the student’s time and one month of the faculty advisor’s time. For a PhD dissertation the numbers are 2MY for the student and 4 months for the advisor.

5. Would you like to make any remarks? (These will be shared with the academic department and the faculty chairperson.) (If necessary, please continue on reverse side)

You may mail this to AFIT/ENR, 2950 P Street, Wright-Patterson AFB OH 45433-7765, or fax it to (937) 656-7302 (DSN: 986-7302), or just e-mail your answers (only) to 1 to 5 to afit.enrsta@afit.edu. If you use e-mail, please include the designator above so that we might identify the project.

Thank you.

_____________________________________  ______________________________
Name of Evaluator      Office Symbol

_____________________________________
Grade/Rank of Evaluator
2 RESEARCH STATISTICS

2.1 RESEARCH AND CONSULTING OUTPUT MEASURES

Technology sharing and transfer are critical to the timely development of new operational capabilities. There are measurable indicators of AFIT’s contribution to the engineering and scientific community and AFIT’s success in staying well informed of technical possibilities and scientific opportunities. These include the number and quality of technical publications accepted by the editors of journals, the number of presentations accepted for regional, national and international conferences, the number of research projects conducted, the number of consultations performed for Air Force and DoD customers, and finally the number of student MS theses and PhD dissertations that are completed and submitted to the Defense Technical Information Center. For FY01, these output measures are shown in Table 2.1 and in Figure 2.1.

Table 2.1: Faculty Research and Consulting Output

<table>
<thead>
<tr>
<th>Graduate School Department</th>
<th>Number of Faculty</th>
<th>Refereed Publications</th>
<th>Other Publications</th>
<th>Presentations</th>
<th>Funded Research Projects</th>
<th>Substantial Consultations</th>
<th>Masters Theses Advised</th>
<th>Doctoral Dissertations Advised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math (ENC)</td>
<td>10</td>
<td>4</td>
<td>3</td>
<td>7</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Elec (ENG)</td>
<td>20</td>
<td>15</td>
<td>89</td>
<td>101</td>
<td>34</td>
<td>58</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>Phys (ENP)</td>
<td>18</td>
<td>23</td>
<td>10</td>
<td>33</td>
<td>26</td>
<td>2</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Op Sc (ENS)</td>
<td>15</td>
<td>14</td>
<td>14</td>
<td>64</td>
<td>15</td>
<td>5</td>
<td>48</td>
<td>3</td>
</tr>
<tr>
<td>Sys &amp; Eng Man (ENV)</td>
<td>15</td>
<td>8</td>
<td>16</td>
<td>15</td>
<td>7</td>
<td>7</td>
<td>57</td>
<td>0</td>
</tr>
<tr>
<td>Aero (ENY)</td>
<td>18</td>
<td>18</td>
<td>54</td>
<td>26</td>
<td>32</td>
<td>13</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>96</td>
<td>82</td>
<td>186</td>
<td>245</td>
<td>120</td>
<td>85</td>
<td>189</td>
<td>6</td>
</tr>
</tbody>
</table>

Figure 2.1: Research Output Measures
2.2 RESEARCH AND CONSULTING SPONSORSHIP

As members of an Air Force institution, the faculty of the AFIT focus their research on current problems as well as future systems of the Air Force and other DoD organizations. Evidence of this focus is that 96% of all theses and dissertations listed in Table 1.2 were externally sponsored by Air Force, DoD and Government agencies. In addition, most of the research projects and consultations were carried out for Air Force and DoD units. The data are summarized in Table 2.2 and Figure 2.2.

Figure 2.2: Sponsors of AFIT Theses and Dissertations
<table>
<thead>
<tr>
<th>SPONSOR ORGANIZATION</th>
<th>Masters' Theses</th>
<th>PhD Dissertation</th>
<th>Funded Research</th>
<th>Significant Consultations</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR FORCE</td>
<td>12</td>
<td>12</td>
<td>9</td>
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</tr>
<tr>
<td>AIR COMBAT COMMAND</td>
<td>3</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Air Force Information Warfare Center</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UAV Battelab</td>
<td>2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>AIR EDUCATION &amp; TRAINING COMMAND</td>
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<td></td>
<td></td>
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<tr>
<td>Air Force Institute of Technology</td>
<td>34</td>
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<td></td>
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<tr>
<td>Air Force Recruiting Service</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIR FORCE MATERIEL COMMAND</td>
<td>9</td>
<td>2</td>
<td>6</td>
<td></td>
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<tr>
<td>Aeronautical Systems Center</td>
<td>5</td>
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<tr>
<td>Air Force Research Laboratory</td>
<td>47</td>
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<td>27</td>
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<tr>
<td>Air Force Research Lab/Air Force Office of Scientific Research</td>
<td>16</td>
<td>1</td>
<td>41</td>
<td>3</td>
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<tr>
<td>F-22 Systems Program Office</td>
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<tr>
<td>Space &amp; Missile Systems Center</td>
<td>7</td>
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<tr>
<td>Air Force Flight Test Center</td>
<td>2</td>
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<tr>
<td>AIR FORCE SPACE COMMAND</td>
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<tr>
<td>Space Warfare Center</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>AIR MOBILITY COMMAND</td>
<td>4</td>
<td>1</td>
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<td></td>
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<tr>
<td>USAF FIELD OPERATING AGENCIES</td>
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</tr>
<tr>
<td>Air Force Center for Environmental Excellence</td>
<td>4</td>
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<tr>
<td>Air Force Civil Engineer Support Agency</td>
<td>5</td>
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<tr>
<td>Air Force Combat Climatology Center</td>
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<td></td>
<td></td>
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<tr>
<td>Air Force Logistics Management Agency</td>
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<td></td>
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<tr>
<td>Air Force Personnel Center</td>
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<tr>
<td>Air Force Safety Center</td>
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<td>Air Force Studies Analyses Agency</td>
<td></td>
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<td></td>
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<tr>
<td>Air Force Technical Applications Center</td>
<td>3</td>
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<td>Air Force Weather Agency</td>
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<tr>
<td>USAF DIRECT REPORTING UNIT</td>
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<td>Air Force Communication Agency</td>
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<tr>
<td>Air Force Academy</td>
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<td>ARMY</td>
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<td>US Army Safety Center</td>
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<td>DEPARTMENT OF DEFENSE</td>
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<td>Defense Advanced Research Projects Agency</td>
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<tr>
<td>Government Supply Agency</td>
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<td>Joint Warfare Analysis Center</td>
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<tr>
<td>National Reconnaissance Office</td>
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<tr>
<td>Office of the Secretary of Defense</td>
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<tr>
<td>Undersecretary of Defense for Environmental Security</td>
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<td></td>
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<tr>
<td>United States Commander in Chief Pacific Command</td>
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<tr>
<td>USSTRATCOM</td>
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<tr>
<td>DEPARTMENT OF ENERGY</td>
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<td>NATIONAL SECURITY AGENCY</td>
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<tr>
<td>DAYTON AREA GRADUATE STUDIES INSTITUTE</td>
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<td>5</td>
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<tr>
<td>NATIONAL CONTRACT MANAGEMENT ASSOCIATION</td>
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<tr>
<td>THE OHIO STATE UNIVERSITY</td>
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<tr>
<td>ROYAL AUSTRALIAN AIR FORCE</td>
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<td></td>
<td></td>
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<tr>
<td>OTHERS</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td>200*</td>
<td>6</td>
<td>119</td>
<td>93*</td>
</tr>
</tbody>
</table>

*Multiple Sponsors
2.3 OUTSIDE FUNDING FOR THE GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT

Many of the Graduate School of Engineering and Management’s theses and research projects completed under faculty supervision (sponsored or unsponsored) are funded in part by other Air Force, DoD and government units and agencies. Often this funding results from collaboration between faculty and thesis sponsors and occurs when the research project can be leveraged by the purchase of equipment or services not otherwise available. Table 2.3 and Figure 2.3 summarize outside funding for FY01.

Table 2.3: Sponsoring Organizations for Funded Research

<table>
<thead>
<tr>
<th>Sponsoring Organization</th>
<th>Funded Projects</th>
<th>Dollars ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Force Research Lab (AFRL)</td>
<td>27</td>
<td>$612,182</td>
</tr>
<tr>
<td>AFRL/Air Force Office Scientific Research (AFOSR)</td>
<td>41</td>
<td>$1,291,437</td>
</tr>
<tr>
<td>Other USAF</td>
<td>19</td>
<td>$480,483</td>
</tr>
<tr>
<td>Other DoD</td>
<td>10</td>
<td>$311,349</td>
</tr>
<tr>
<td>Tech Transfer (CRADAs)</td>
<td>22</td>
<td>$560,985</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>119</strong></td>
<td><strong>$3,256,436</strong></td>
</tr>
</tbody>
</table>

* Includes carry over funding from FY00 of $510,585.

**DoD regulations limit AFIT’s charges to DoD organizations. Accounting for these nonchargeable items, the cost of our research program at a comparable civilian university would have been approximately $8 million.

Figure 2.3: FY01 Funded Research
2.4 FACULTY FELLOWS

**Bridgman, Charles J.**, Professor Emeritus of Nuclear Engineering, Department of Engineering Physics, Fellow of the American Nuclear Society.

**D’Azzo, John J.**, Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

**Franke, Milton E.**, Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society of Mechanical Engineers.

**Houpis, Constantine H.**, Professor Emeritus of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

**Mall, Shankar**, Air Force Research Laboratory, Professor, Department of Aeronautics and Astronautics, Fellow of the American Society of Mechanical Engineers.

**Maybeck, Peter S.**, Professor of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

**Pachter, Meir**, Professor of Electrical Engineering, Department of Electrical and Computer Engineering, Fellow of the Institute of Electrical and Electronic Engineers.

**Palazotto, Anthony N.**, Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, Fellow of the American Society of Civil Engineers.

**Torvik, Peter J.**, Professor Emeritus of Aerospace Engineering and Engineering Mechanics, Department of Aeronautics and Astronautics, Fellow of the American Institute of Aeronautics and Astronautics, Fellow of American Society of Mechanical Engineers.
2.5 PROFESSIONAL CERTIFICATION

Brady, Stephan P., Certified Professional Logistician, Society of Logistics Engineers

Brothers, Heidi S., P.E., Professional Engineer, State of Oregon and California, C44500

Chrissis, James W., Professional Engineer, State of Florida, 0037247

D’Azzo, John J., Professional Engineer, State of Ohio, E-12550

Goltz, Mark N., DEE, Diplomate Environmental Engineer, American Academy of Environmental Engineers, Hazardous Waste Management Specialty Certification

Goltz, Mark N., P.E., Professional Engineer, State of Minnesota, 13978

Greiner, Michael A., Certified Cost Estimator/Analyst, Society of Cost Estimating and Analysis

Gunsch, Gregg H., Professional Engineer, State of Ohio, 56828

Heil, Michael L., Professional Engineer, State of Colorado, 167712

Houpis, Constantine H., Professional Engineer, State of Ohio, E-19084

Jodoin, Vincent J., Professional Engineer, State of Ohio, E-57166

Palazotto, Anthony N., Professional Engineer, State of Ohio, E-39937

Perram, Glen P., Professional Engineer, State of Ohio, E-060534

Quinn, Dennis W., Professional Engineer, State of Ohio, E-056873

Spenny, Curtis H., Professional Engineer, State of Ohio, E-038759
3. CONTRIBUTIONS TO THE AIR FORCE

3.1 DOCTORAL DISSERTATIONS


Dolezal, Michael W.  *Spectroscopic Constants, Lifetimes and Predissociation Rates for Bi2A(0u+).*  AFIT/DS/ENP/01-01.  Faculty Advisor: Dr. Glen P. Perram, DSN: 785-3636, ext 4504.  Sponsor: AFOSR/NL.


Huang, Yih-Shiun.  *Adaptive and Reconfigurable Flight Control.*  AFIT/DS/ENG/01-02.  Faculty Advisor: Dr. M. Pachter, DSN: 785-3636, ext 4593.  Sponsor: AFRL/VACA.

Wright, Samuel A.  *Covalidation of Dissimilarly Structured Models.*  AFIT/DS/ENS/00-02.  Faculty Advisor: Dr. Kenneth W. Bauer, Jr., DSN: 785-6565, ext 4328.  Sponsor: HQ AMC/XPY.
3.2 MASTERS THESES BY PROGRAM

3.2.1 ACQUISITION MANAGEMENT


Corbett, John F. An Identification and Discussion of Key Success Factors in the Acquisition of Commercial-off-the-shelf (COTS-) Based Systems. AFIT/GAQ/ENV/01M-03. Faculty Advisor: Lt Col David Petrillo. Sponsor: SMC/DET 11/CZSI.

Elyea, William B. An Investigation of the Contracting Officer Career Pyramid. AFIT/GAQ/ENV/01M-04. Faculty Advisor: Lt Col David Petrillo. Sponsor: SAF/AQCX.


Harris, Rachael A. Award Term Incentive Contracting: An Investigation of United States Air Force Strategic Purchasing. AFIT/GAQ/ENV/01M-07. Faculty Advisor: Lt Col David Petrillo. Sponsor: HQ AFMC/PKPC.


Porter, Paul H. Revising R & D Program Budgets When Considering Funding Curtailment With a Weibull Model. AFIT/GAQ/ENS/01M-01. Faculty Advisor: Lt Col Mark A. Gallagher. Sponsor: OSD PA&E (RA).


### 3.2.2 AERONAUTICAL ENGINEERING


Gillen, Daniel P. *Cooperative Behavior Schemes For Improving The Effectiveness of Autonomous Wide Area Search Munitions.* AFIT/GAE/ENY/01M-03. Faculty Advisor: Lt Col David R. Jacques, DSN: 785-255-3636 x4723. Sponsor: AFRL/MNGN.

Hartsfield, Carl. *Analysis of the Application of A Triggered Isomer Heat Exchanger As A Replacement For The Combustion Chamber In An Off-The-Shelf Turbojet.* AFIT/GAE/ENY/01M-04. Faculty Advisor: Dr. Paul I. King, DSN: 785-255-3636 x4628. Sponsor: AFRL/DEPA.


McDonald, Brian C. *Desktop Computer Programs For Preliminary Design of Transonic Compressor Rotors.* AFIT/GAE/ENY/01M-06. Faculty Advisor: Dr. Paul I. King, DSN: 785-255-3636 x4628. Sponsor: AFRL/PRTF.

Shipman, William C.  *The Development of A Finite Element Program To Model High Cycle Fatigue In Isotropic Plates.*  AFIT/GAE/ENY/01M-08.  Faculty Advisor: Dr. Anthony N. Palazotto, DSN: 785-255-3636 x4599.  Sponsor: Department of Aerospace Engineering & Aviation & The Ohio State University.

White, Andrew L.  *Computational Investigation of Aeromechanical HCF Effects In A Compressor Rotor.*  AFIT/GAE/ENY/01M-09.  Faculty Advisor: Dr. Paul I. King, DSN: 785-255-3636 x4628.  Sponsor: AFRL/PRTF.

### 3.2.3 APPLIED MATHEMATICS


### 3.2.4 APPLIED PHYSICS


Cox, Joseph L.  *Electronic Quenching of the A(0+u) State of Bi2.*  AFIT/GAP/ENP/01M-02.  Faculty Advisor: Dr. Glen P. Perram, DSN: 785-3636, ext 4504.  Sponsor: AFOSR/NL.

Green, Bradford S.  *Validation and Assessment of DMSP Electron Temperatures in the Topside Ionosphere.*  AFIT/GAP/ENP/01M-03.  Faculty Advisor: Major Devin J. Della-Rose, DSN: 785-3636, ext 4514.  Sponsor: HQAFWA/XOGS.

Henry, Jean W.  *Use of Quantum Mechanical Calculations to Investigate Small Silicon Carbide Clusters.*  AFIT/GAP/ENP/01M-04.  Faculty Advisor: Dr. Larry W. Burggraf, DSN: 53636, ext 4507.  Sponsor: AFOSR.


Mckay, Michael R.  *Time-Resolved Photoluminescence of InAs/GaInSb Quantum Well Lasers.*  AFIT/GAP/ENP/OIJ-02.  Faculty Advisor: Lt Col M. A. Marciniak, DSN: 785-3636, ext 4529.  Sponsor: DAGSI.

### 3.2.5 ASTRONAUTICAL ENGINEERING


Krolikowski, Sean A. *Modification of Position and Attitude Determination of A Test Article Through Photogrammetry to Account For Structural Deformation.* AFIT/GA/ENY/01M-03. Faculty Advisor: Dr. Steven G. Tragesser. Sponsor: AFMC/AEDC.

### 3.2.6 COMPUTER ENGINEERING


Secrest, Barry R. *Traveling Salesman Problem For Surveillance Mission Using Particle Swarm Optimization.* AFIT/GCE/ENG/01M-03. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/SNAT.


### 3.2.7 COMPUTER SYSTEMS


Hooten, David B. *A Traffic Pattern-Based Comparison of Bulk Image Request Response Times for a Virtual Distributed Laboratory.* AFIT/GCS/ENG/01M-03. Faculty Advisor: Major Michael L. Talbert. Sponsor: AFRL/SNAS.


Michaud, Steven R. *Solving the Protein Structure Prediction Problem with Fast Messy Genetic Algorithms (Scaling the Fast Messy Genetic Algorithm to Medium-Sized Peptides by Detecting Secondary Structures).* AFIT/GCS/ENG/01M-06. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/MLPJE.

Nonnweiler, Joel C. *Software Domain Model Integration Methodology for Formal Specifications.* AFIT/GCS.ENG/01M-07. Faculty Advisor: Dr. Thomas C. Hartman. Sponsor: AFOSR/NM.

Polk, Phillip.  *Using A Distributed Object-Oriented Database Management System in Support of a High-Speed Network Intrusion Detection System Data Repository.*  AFIT/GCS/ENG/01M-09.  Faculty Advisor: Dr. Gregg H. Gunsch, DSN: 785-6565, ext 4281.  Sponsor: AFRL/IFGB.


Strong, David M.  *Implementation and Analysis of the Parallel Genetic Rule and Classifier Construction Environment.*  AFIT/GCS/ENG/01M-14.  Faculty Advisor: Dr. Gary LaMont, DSN: 785-3636, ext 4718.  Sponsor: AFRL/IFTC.

3.2.8 ELECTRICAL ENGINEERING

Bernhard, William L.  *Optical and Etching Studies of Native Aluminum Oxide Layers for Use in Microcavity Photonic Devices.*  AFIT/GE/ENG/01M-01.  Faculty Advisor: Lt Col James A. Lott, DSN: 785-3636, ext 4576.  Sponsor: AFRL/SNDD.


Bradley, Christopher J.  *The Calibration of Bistatic Radar Cross Section Measurements.*  AFIT/GE/ENG/01M-03.  Faculty Advisor: Dr. Andrew J. Terzuoli, DSN: 785-3636, ext 4717.  Sponsor: AFRL/SNAS.


Chan, Kin-Weng.  *A Radial Basis Function Neural Network Approach to Two-Color Infrared Missile Detection.*  AFIT/GE/ENG/01M-05.  Faculty Advisor: Dr. Steven C. Gustafson, DSN: 785-3636, ext 4598.  Sponsor: AFRL/SNJM.

Crossley, Benjamin L.  *Characterization and Validation of the GP-3 Experimental Radar System.*  AFIT/GE/ENG/01M-06.  Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703.  Sponsor: AFRL/SNRP.

Dixon, Donald B.  *Low-Band Emitter Direction Finding and Location on UAV-Sized Platforms.*  AFIT/GE/ENG/01M-08.  Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703.  Sponsor: AFRL/SNRP.


Freundl, Kyle J.  *Bistatic Cross Section Comparison of Alternate.*  AFIT/GE/ENG/01M-10.  Faculty Advisor: Dr. Andrew J. Terzuoli, DSN: 785-3636, ext 4717.  Sponsor: AFRL/SNA.
Golla, Keven J.  Broadband Application of High Impedance Ground Planes.  AFIT/GE/ENG/01M-11.  Faculty Advisor:  Major Peter J. Collins.  Sponsor:  AFRL/SNRP.


Marcum, Mary K.  Redundant Wavelet-Based Image Restoration Using a Prior Information.  AFIT/GE/ENG/01M-17.  Faculty Advisor:  Major Roger L. Claypoole, Jr., DSN: 785-3636, ext 4625.  Sponsor:  NAIC/GTN.

Mendenhall, Michael J.  Wavelet-Based Audio Embedding & Audio/Video Compression.  AFIT/GE/ENG/01M-18.  Faculty Advisor:  Major Roger L. Claypoole, Jr., DSN: 785-3636, ext 4625.  Sponsor:  AFRL/IFTA.


3.2.9 ELECTRO-OPTICS


3.2.10 ENGINEERING AND ENVIRONMENTAL MANAGEMENT

Clark, Lance D.  Analysis and Evaluation of the Macroscopic Organizational Structure of Red Horse.  AFIT/GEE/ENV/01M-01.  Faculty Advisor:  Lt Col Heidi S. Brothers, DSN 785-3636, ext 4800.  Sponsor:  ACC/CEX.


Gilpin, Douglas W.  An Analysis of the Effectiveness of Pollution Prevention in Reducing Environmental Compliance Costs.  AFIT/GEE/ENV/01M-03.  Faculty Advisor:  Lt Col Alfred E. Thal, Jr., DSN: 785-336, ext 4591.  Sponsor:  HQ USAF/ILEVQ.


Kauth, David A. *Dissolution of Chromium from Inhalable Primer Paint Particles into a Simulated Lung Fluid.* AFIT/GEE/ENV/01M-07. Faculty Advisor: Major Peter T. LaPuma, DSN: 785-6565, ext 4319. Sponsor: AFOSR/NR.

Lo, Steven W. *Differences in Civil Engineer Perceptions of Change Based on Prior Training and Experience.* AFIT/GEE/ENV/01M-08. Faculty Advisor: Lt Col Alfred E. Thal, Jr., DSN: 785-3636, ext 4591. Sponsor: HQ USAF/ILEIO.

Matusak, George J. *Analysis of Factors Influencing Tolerance of Fraternization.* AFIT/GEE/ENV/01M-09. Faculty Advisor: Major Paul Thurston. Sponsor: AF/JAG.


Novy, David B. *Chromate Content Bias as a Function of Particle Size in Aircraft Primer Paint Overspray.* AFIT/GEE/ENV/01M-12. Faculty Advisor: Major Peter T. LaPuma, DSN: 785-6565, ext 4319. Sponsor: AFOSR/NR.


Shoviak, Mark J. *Decision Analysis Methodology to Evaluate Integrated Solid Waste Management Alternatives for a Remote Alaskan Air Station.* AFIT/GEE/ENV/01M-20. Faculty Advisor: Lt Col Alfred E. Thal, Jr., DSN: 785-3636, ext 4591. Sponsor: 611 CES/ENV.


Vaira, Rusty J. *An Analysis of Civil Engineer Officer Contingency Training.* AFIT/GEE/ENV/01M-22. Faculty Advisor: Lt Col Al E. Thal, Jr., DSN: 785-3636, ext 4591. Sponsor: Det 1, 823rd Red Horse.


Young, Harold C. *Quantitative Validation of a Model of Chlorinated Ethene Natural Attenuation.* AFIT/GEE/ENV/01M-25. Faculty Advisor: Dr Mark Goltz, DSN: 785-33, ext 438. Sponsor: AFCEE/ERT.

3.2.11 INFORMATION RESOURCE MANAGEMENT


Autrey, Jon C. *The Influence of Framing Effects on Perceived Ease of Use, Perceived Usefulness, and Behavioral Intention in Information Technology Systems.* AFIT/GIR/ENV/01M-01. Faculty Advisor: Major Michael G. Morris. Sponsor: AFMC/SCDX.


Franke, Albert E. *Comparative Analysis of Traditional Versus Computer-Based Survey Instrument Response.* AFIT/GIR/ENV/01M-08. Faculty Advisor: Major Mark A. Ward, DSN: 785-3636, ext 3329. Sponsor: HQ AFPC/DPSAS.

Hartmann, Robert E. *Influence of Personality Type and Anonymity on Participation in a Group Support System.* AFIT/GIR/ENV/01M-09. Faculty Advisor: Major Michael G. Morris. Sponsor: AFIT/EN.


Thompson, Kevin V. *GSS Technology as a Moderator of Influence and Perceived Expertise.* AFIT/GIR/ENV/01M-14. Faculty Advisor: Major Michael Morris. Sponsor: AFIT/EN.

### 3.2.12 LOGISTICS MANAGEMENT

Anaya, Victor A. *Analysis of the Next Generation Small Loader (NGSL) in Reducing the Mobility Footprint.* AFIT/GLM/ENS/01M-01. Faculty Advisor: Dr. William A. Cunningham, DSN: 785-6565, ext 4283. Sponsor: AMC/XPRS.


Boone, Christopher. *Development of an Instrument to Identify Unique Supply Officer Knowledge.* AFIT/GLM/ENS/01M-03. Faculty Advisor: Major Marvin A. Arostegui. Sponsor: Deputy Chief of Staff for Installations & Logistics.


Buyukacar, Murat V. *Effects of Alternative Performance Criteria Upon Composition of Air Transportable Spar Parts Kits.* AFIT/GLM/ENS/01M-05. Faculty Advisor: Lt Col Alan Johnson. Sponsor: AFIT/EN.

Colvard, Michael J. *An Analysis of the Interaction Between the J3 and J4 War Planning Staffs During the Phases of Crisis Action Planning.* AFIT/GLM/ENS/01M-06. Faculty Advisor: Lt Col Stephen M. Swartz, DSN: 785-6565, ext 4285. Sponsor: DARPA/ISO.


Martinez, Steven L. *The Effect of Improving the Logistics Pipeline on Supply Support of Aerospace Expeditionary Forces.* AFIT/GLM/ENS/01M-16. Faculty Advisor: Major Marvin A. Arostegui. Sponsor: HQ USAF/ILS.

Masciulli, Jason L. *A Cost Comparison Between Modes in the Shipment of Mission Capable Parts within the Continental United States.* AFIT/GLM/ENS/01M-17. Faculty Advisor: Dr. William A. Cunningham, DSN: 785-6565, ext 4283. Sponsor: AFIT/EN.

Oliver, Steven A. *Forecasting Readiness: Using Regression to Predict the Mission Capability of Air Force F-16 Fighter Aircraft.* AFIT/GLM/ENS/01M-18. Faculty Advisor: Lt Col Alan Johnson. Sponsor: AF/ILMY.


Sandoval, Robert D. *An Analysis of Reliability Improvement Costs During the Engineering and Development Phase of Fighter Aircraft.* AFIT/GLM/ENS/01M-20. Faculty Advisor: Lt Col Alan W. Johnson. Sponsor: AFIT/EN.


Tuttle, Robert E.  *Air Mobility Command Passenger Reservation System Analysis.*  AFIT/GLM/ENS/01M-23.  Faculty Advisor: Dr. William A. Cunningham, DSN: 785-6565, ext 4283.  Sponsor: HQ AMC/DONR.


Wasik, Robert A.  *A Method for FMS Countries to Maximize CLSSA Service Levels while Minimizing Costs through Optimal Requisitioning Patterns.*  AFIT/GLM/ENS/01M-25.  Faculty Advisor: Major Marvin A. Arostegui.  Sponsor: AFIT/EN.

### 3.2.13 MATERIAL SCIENCE

Avram, Jason.  *Fatigue Response of Thin Stiffened Aluminum Cracked Panels Repaired With Bonded Composite Patches.*  AFIT/GMS/ENY/01M-01.  Faculty Advisor: Dr. Shankar Mall, DSN: 785-255-3636 x4587.  Sponsor: AFRL/MLSA & AFRL/VASE.

### 3.2.14 METEOROLOGY

Budai, Jeffrey W.  *Analyzing the Effects of Meteorology on Radar Measured Index of Refraction Structure Parameter.*  AFIT/GM/ENP/01M-1.  Faculty Advisor: Lt Col Michael K. Walters, DSN: 785-3636, ext 4681.  Sponsor: SMC/TM.


Kinser, Aaron M.  *Simulating Wet Deposition of Radiocesium from the Chernobyl Accident.*  AFIT/GM/ENP/01M-05.  Faculty Advisor: Lt Col Michael K. Walters, DSN: 785-3636, ext 4681.  Sponsor: AFTAC/TMAR.


3.2.15 NUCLEAR ENGINEERING


Harris, Tim C.  *Proliferation Aspects of the Electromagnetic Isotope Separation Programs.*  AFIT/GNE/ENP/01M-04.  Faculty Advisor:  Lt Col (Sel) Vincent J. Jodoin, DSN: 785-3636, ext 4506.  Sponsor:  AFIT/EN.

Schueneman, Richard A.  *Oxidation at Surfaces of Uranium Oxide Particles.*  AFIT/GNE/ENP/01M-05.  Faculty Advisor:  Dr. Larry W. Burggraf, DSN: 785-3636, ext 4507.  Sponsor:  AFTAC.


3.2.16 OPERATIONS RESEARCH


Beauregard, Joseph E.  *Modeling Information Assurance.*  AFIT/GOR/ENS/01M-03.  Faculty Advisor:  Dr. Richard F. Deckro, DSN: 785-6565, ext 4325.  Sponsor:  DARPA & AFTAC.


Tekin, Hakan.  *Minimum Distance Estimation for Time Series Analysis with Little Data.*  AFIT/GOR/ENS/01M-17.  Faculty Advisor: Lt Col Mark A. Gallagher.  Sponsor: AFIT/EN.


### 3.2.17 SPACE OPERATIONS

Cook, Dayne G.  *Solar Radiation Pressure Modeling Issues For High Altitude Satellites.*  AFIT/GSO/ENY/01M-01.  Faculty Advisor: Dr. Steven G. Tragesser, DSN: 785-255-6565 x4286.  Sponsor: HQ SWC/AE.

Davis, Donald J.  *Environmental Disturbance Modeling For Large Inflatable Space Structures.*  AFIT/GSO/ENY/01M-02.  Faculty Advisor: Major Gregory S. Agnes, DSN: 785-255-6565 x4317.  Sponsor: AFOSR/NA.

Galbreath, Charles S.  *Quality Initiatives In The Air Force Development of Reusable Launch Vehicles,*  AFIT/GSO/ENY/01M-03.  Faculty Advisor: Dr. Milton Franke, DSN: 785-255-3636 x4720.  Sponsor: AFRL/MLM.

Oldenburg, James.  *In Orbit Basing of An Anti-Satellite Mission,*  AFIT/GSO/ENY/01M-04, Faculty Advisor: Dr. William E. Wiesel Jr., DSN: 785-255-6565 x4312.  Sponsor: SMC/XRD.


Bartolomei, Jason E.  *The Use of Systems Engineering Processes and Tools To Develop A System Dynamic Simulation Model of Engineering Support During The Development Phase of An Acquisition Program.*  
AFIT/GSE/ENY/01M-01.  Faculty Advisor:  Lt Col Price E. Smith, DSN:  785-255-6565 x4318.  Sponsor:  ASC/EN.

AFIT/GSE/ENY/01M-02.  Faculty Advisor:  Major Greg Agnes, DSN:  785-255-6565 x4317.  Sponsor:  NRO.
3.3 SPONSORS OF MASTERS THESES
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3.3.2 AIR COMBAT COMMAND (28)
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   UAV BATTLELAB

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   AIR FORCE INSTITUTE OF TECHNOLOGY
   AIR FORCE RECRUITING SERVICE

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   AIR FORCE RESEARCH LABORATORY
   AIR FORCE RESEARCH LABORATORY/AIR FORCE OFFICE OF SCIENTIFIC RESEARCH
   F-22 SYSTEMS PROGRAM OFFICE
   SPACE & MISSLE SYSTEMS CENTER
   AIR FORCE FLIGHT TEST CENTER

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   AIR FORCE LOGISTICS MANAGEMENT AGENCY
   AIR FORCE PERSONNEL CENTER
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   AIR FORCE TECHNICAL APPLICATIONS CENTER
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   UNDERSECRETARY OF DEFENSE FOR ENVIRONMENTAL SECURITY
   UNITED STATES COMMANDER IN CHIEF PACIFIC COMAND
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Boone, Christopher. *Development of an Instrument to Identify Unique Supply Officer Knowledge.* AFIT/GLM/ENS/01M-03. Faculty Advisor: Major Marvin A. Arostegui. Sponsor: Deputy Chief of Staff for Installations & Logistics.


Elyea, William B. *An Investigation of the Contracting Officer Career Pyramid.* AFIT/GAQ/ENV/01M-04. Faculty Advisor: Lt Col David Petrillo. Sponsor: SAF/AQCX.

Gilpin, Douglas W. *An Analysis of the Effectiveness of Pollution Prevention in Reducing Environmental Compliance Costs.* AFIT/GEE/ENV/01M-03. Faculty Advisor: Lt Col Alfred E. Thal, Jr., DSN: 785-336, ext 4591. Sponsor: HQ USAF/ILEVQ.


Lo, Steven W. *Differences in Civil Engineer Perceptions of Change Based on Prior Training and Experience.* AFIT/GEE/ENV/01M-08. Faculty Advisor: Lt Col Alfred E. Thal, Jr., DSN: 785-3636, ext 4591. Sponsor: HQ USAF/IAMAS.

Martinez, Steven L. *The Effect of Improving the Logistics Pipeline on Supply Support of Aerospace Expeditionary Forces.* AFIT/GLM/ENS/01M-16. Faculty Advisor: Major Marvin A. Arostegui. Sponsor: HQ USAF/ILS.

Matusak, George J. *Analysis of Factors Influencing Tolerance of Fraternization.* AFIT/GEE/ENV/01M-09. Faculty Advisor: Major Paul Thurston. Sponsor: AF/JAG.

Oliver, Steven A. *Forecasting Readiness: Using Regression to Predict the Mission Capability of Air Force F-16 Fighter Aircraft.* AFIT/GLM/ENS/01M-18. Faculty Advisor: Lt Col Alan Johnson. Sponsor: AF/ILMY.

3.3.2 AIR COMBAT COMMAND


Clark, Lance D. *Analysis and Evaluation of the Macroscopic Organizational Structure of Red Horse.* AFIT/GEE/ENV/01M-01. Faculty Advisor: Lt Col Heidi S. Brothers, DSN 785-3636, ext 4800. Sponsor: ACC/CEX.
Vaira, Rusty J. *An Analysis of Civil Engineer Officer Contingency Training.* AFIT/GEE/ENV/01M-22. Faculty Advisor: Lt Col Alfred E. Thal, Jr., DSN: 785-3636, ext 4591. Sponsor: Det 1, 823rd Red Horse.

**AIR FORCE INFORMATION WARFARE CENTER**


**UAV BATTLELAB**


**3.3.3 AIR EDUCATION AND TRAINING COMMAND**

**AIR FORCE INSTITUTE OF TECHNOLOGY**


Buyukacar, Murat V. *Effects of Alternative Performance Criteria Upon Composition of Air Transportable Spar Parts Kits.* AFIT/GLM/ENS/01M-05. Faculty Advisor: Lt Col Alan Johnson. Sponsor: AFIT/EN.


Harris, Tim C. *Proliferation Aspects of the Electromagnetic Isotope Separation Programs.* AFIT/GNE/ENP/01M-04. Faculty Advisor: Lt Col (Sel) Vincent J. Jodoin, DSN: 785-3636, ext 4506. Sponsor: AFIT/EN.

Hartmann, Robert E. *Influence of Personality Type and Anonymity on Participation in a Group Support System.* AFIT/GIR/ENV/01M-09. Faculty Advisor: Maj Michael G. Morris. Sponsor: AFIT/EN.


Masciulli, Jason L. *A Cost Comparison Between Modes in the Shipment of Mission Capable Parts within the Continental United States.* AFIT/GLM/ENS/01M-17. Faculty Advisor: Dr. William A. Cunningham, DSN: 785-6565, ext 4283. Sponsor: AFIT/EN.


Sandoval, Robert D. *An Analysis of Reliability Improvement Costs During the Engineering and Development Phase of Fighter Aircraft.* AFIT/GLM/ENS/01M-20. Faculty Advisor: Lt Col Alan W. Johnson. Sponsor: AFIT/EN.


Tekin, Hakan. *Minimum Distance Estimation for Time Series Analysis with Little Data.* AFIT/GOR/ENS/01M-17. Faculty Advisor: Lt Col Mark A. Gallagher. Sponsor: AFIT/EN.

Thompson, Kevin V. *GSS Technology as a Moderator of Influence and Perceived Expertise.* AFIT/GIR/ENV/01M-14. Faculty Advisor: Major Michael Morris. Sponsor: AFIT/EN.


AIR FORCE RECRUITING SERVICE


3.3.4 AIR FORCE MATERIEL COMMAND

Autrey, Jon C. *The Influence of Framing Effects on Perceived Ease of Use, Perceived Usefulness, and Behavioral Intention in Information Technology Systems.* AFIT/GIR/ENV/01M-01. Faculty Advisor: Major Michael G. Morris. Sponsor: AFMC/SCDX.


Harris, Rachael A.  *Award Term Incentive Contracting: An Investigation of United States Air Force Strategic Purchasing.* AFIT/GAQ/ENV/01M-07. Faculty Advisor: Lt Col David Petrillo. Sponsor: HQ AFMC/PKPC.


Krolikowski, Sean A.  *Modification of Position and Attitude Determination of A Test Article Through Photogrammetry to Account For Structural Deformation.* AFIT/GA/ENY/01M-03. Faculty Advisor: Dr. Steven G. Tragesser. Sponsor: AFMC/AEDC.


**AERONAUTICAL SYSTEMS CENTER**


**AIR FORCE RESEARCH LABORATORY**

Avram, Jason.  *Fatigue Response of Thin Stiffened Aluminum Cracked Panels Repaired With Bonded Composite Patches.* AFIT/GMS/ENY/01M-01. Faculty Advisor: Dr. Shankar Mall, DSN: 785-255-3636 x4587. Sponsor: AFRL/MLSA.

Bernhard, William L.  *Optical and Etching Studies of Native Aluminum Oxide Layers for Use in Microcavity Photonic Devices.* AFIT/GE/ENG/01M-01. Faculty Advisor: Lt Col James A. Lott, DSN: 785-3636, ext 4576. Sponsor: AFRL/SNDD.

Bradley, Christopher J.  *The Calibration of Bistatic Radar Cross Section Measurements*.  AFIT/GE/ENG/01M-03.  Faculty Advisor: Dr. Andrew J. Terzuoli, DSN: 785-3636, ext 4717.  Sponsor: AFRL/SNAS.


Crossley, Benjamin L.  *Characterization and Validation of the GP-3 Experimental Radar System*.  AFIT/GE/ENG/01M-06.  Faculty Advisor: Dr. Michael A. Temple, DSN: 785-3636, ext 4703.  Sponsor: AFRL/SNRP.


Galbreath, Charles S.  *Quality Initiatives In The Air Force Development of Reusable Launch Vehicles*, AFIT/GSO/ENY/01M-03.  Faculty Advisor: Dr. Milton Franke, DSN: 785-255-3636 x4720.  Sponsor: AFRL/MLM.

Gillen, Daniel P.  *Cooperative Behavior Schemes For Improving The Effectiveness of Autonomous Wide Area Search Munitions*.  AFIT/GAE/ENY/01M-03.  Faculty Advisor: Lt Col David R. Jacques, DSN: 785-255-3636 x4720.  Sponsor: AFRL/MNGN

Golla, Keven J.  *Broadband Application of High Impedance Ground Planes*.  AFIT/GE/ENG/01M-11.  Faculty Advisor: Major Peter J. Collins.  Sponsor: AFRL/SNRP.


Hartsfield, Carl. *Analysis of the Application of a Triggered Isomer Heat Exchanger As A Replacement For The Combustion Chamber In An Off-The-Shelf Turbojet*. AFIT/GAE/ENY/01M-04. Faculty Advisor: Dr. Paul I. King, DSN: 785-255-3636 x4628. Sponsor: AFRL/DEPA.


Hooten, David B. *A Traffic Pattern-Based Comparison of Bulk Image Request Response Times for a Virtual Distributed Laboratory*. AFIT/GCS/ENG/01M-03. Faculty Advisor: Major Michael L. Talbert. Sponsor: AFRL/SNAS.


McDonald, Brian C. *Desktop Computer Programs For Preliminary Design of Transonic Compressor Rotors*. AFIT/GAE/ENY/01M-06. Faculty Advisor: Dr. Paul I. King, DSN: 785-255-3636 x4628. Sponsor: AFRL/PRTF.


Michaud, Steven R. *Solving the Protein Structure Prediction Problem with Fast Messy Genetic Algorithms (Scaling the Fast Messy Genetic Algorithm to Medium-Sized Peptides by Detecting Secondary Structures)*. AFIT/GCS/ENG/01M-06. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/MLPJE.


Polk, Phillip. *Using A Distributed Object-Oriented Database Management System in Support of a High-Speed Network Intrusion Detection System Data Repository.* AFIT/GCS/ENG/01M-09. Faculty Advisor: Dr. Gregg H. Gunsch, DSN: 785-6565, ext 4281. Sponsor: AFRL/IFGB.


Secrest, Barry R. *Traveling Salesman Problem For Surveillance Mission Using Particle Swarm Optimization.* AFIT/GCE/ENG/01M-03. Faculty Advisor: Dr. Gary B. Lamont, DSN: 785-3636, ext 4718. Sponsor: AFRL/MLQ.


*Shipman, William C.* *The Development of A Finite Element Program To Model High Cycle Fatigue In Isotropic Plates.* AFIT/GAE/ENY/01M-08. Faculty Advisor: Dr. Anthony N. Palazotto, DSN: 785-255-3636 x4599. Sponsor: Department of Aerospace Engineering & Aviation, The Ohio State University.


Strong, David M. *Implementation and Analysis of the Parallel Genetic Rule and Classifier Construction Environment.* AFIT/GCS/ENG/01M-14. Faculty Advisor: Dr. Gary LaMont, DSN: 785-3636, ext 4718. Sponsor: AFRL/IFTC.


White, Andrew L. *Computational Investigation of Aeromechanical HCF Effects In A Compressor Rotor.* AFIT/GAE/ENY/01M-09. Faculty Advisor: Dr. Paul I. King, DSN: 785-255-3636 x4628. Sponsor: AFRL/PRTF.


**AIR FORCE RESEARCH LABORATORY/AIR FORCE OFFICE OF SCIENTIFIC RESEARCH**

Cox, Joseph L.  *Electronic Quenching of the A(0+u) State of Bi2.*  AFIT/GAP/ENP/01M-02.  Faculty Advisor: Dr. Glen P. Perram, DSN: 785-3636, ext 4504.  Sponsor: AFOSR/NL.

Davis, Donald J.  *Environmental Disturbance Modeling For Large Inflatable Space Structures.*  AFIT/GSO/ENY/01M-02.  Faculty Advisor: Major Gregory S. Agnes, DSN: 785-255-6565 x4317.  Sponsor: AFOSR/NA.


Henry, Jean W.  *Use of Quantum Mechanical Calculations to Investigate Small Silicon Carbide Clusters.*  AFIT/GAP/ENP/01M-04.  Faculty Advisor: Dr. Larry W. Burggraf, DSN: 53636, ext 4507.  Sponsor: AFOSR.


Kauth, David A.  *Dissolution of Chromium from Inhalable Primer Paint Particles into a Simulated Lung Fluid.*  AFIT/GEE/ENV/01M-07.  Faculty Advisor: Major Peter T. LaPuma, DSN: 785-6565, ext 4319.  Sponsor: AFOSR/NR.


Nonnweiler, Joel C.  *Software Domain Model Integration Methodology for Formal Specifications.*  AFIT/GCS.ENG/01M-07.  Faculty Advisor: Dr. Thomas C. Hartman.  Sponsor: AFOSR/NM.

Novy, David B.  *Chromate Content Bias as a Function of Particle Size in Aircraft Primer Paint Overspray.*  AFIT/GEE/ENV/01M-12.  Faculty Advisor: Major Peter T. LaPuma, DSN: 785-6565, ext 4319.  Sponsor: AFOSR/NR.


**F-22 SYSTEMS PROGRAM OFFICE**


**SPACE AND MISSILE SYSTEMS CENTER**


Corbett, John F.  *An Identification and Discussion of Key Success Factors in the Acquisition of Commercial-off-the-shelf (COTS-) Based Systems.*  AFIT/GAQ/ENV/01M-03.  Faculty Advisor: Lt Col David Petrillo.  Sponsor: SMC/DET 11/CZSI.


Oldenburg, James.  *In Orbit Basing of An Anti-Satellite Mission,*  AFIT/GSO/ENY/01M-04, Faculty Advisor: Dr. William E. Wiesel Jr., DSN: 785-255-6565 x4312.  Sponsor: HQ SWC/AE.


**AIR FORCE FLIGHT TEST CENTER**


**3.3.5 AIR FORCE SPACE COMMAND**

**SPACE WARFARE CENTER**

Cook, Dayne G.  *Solar Radiation Pressure Modeling Issues For High Altitude Satellites.*  AFIT/GSO/ENY/01M-01.  Faculty Advisor: Dr. Steven G. Tragesser, DSN: 785-255-6565 x4286.  Sponsor: HQ SWC/AE.
3.3.6 AIR MOBILITY COMMAND

Anaya, Victor A. *Analysis of the Next Generation Small Loader (NGSL) in Reducing the Mobility Footprint.* AFIT/GLM/ENS/01M-01. Faculty Advisor: Dr. William A. Cunningham, DSN: 785-6565, ext 4283. Sponsor: AMC/XPRS.


Tuttle, Robert E. *Air Mobility Command Passenger Reservation System Analysis.* AFIT/GLM/ENS/01M-23. Faculty Advisor: Dr. William A. Cunningham, DSN: 785-6565, ext 4283. Sponsor: HQ AMC/DONR.

3.3.7 USAF FIELD OPERATING AGENCIES

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE


Young, Harold C. *Quantitative Validation of a Model of Chlorinated Ethene Natural Attenuation.* AFIT/GEE/ENV/01M-25. Faculty Advisor: Dr Mark Goltz, DSN: 785-33, ext 438. Sponsor: AFCEE/ERT.

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY


Shoviak, Mark J. *Decision Analysis Methodology to Evaluate Integrated Solid Waste Management Alternatives for a Remote Alaskan Air Station.* AFIT/GEE/ENV/01M-20. Faculty Advisor: Lt Col Alfred E. Thal, Jr., DSN: 785-3636, ext 4591. Sponsor: 611 CES/ENV.

**AIR FORCE COMBAT CLIMATOLOGY CENTER**


**AIR FORCE LOGISTICS MANAGEMENT AGENCY**


**AIR FORCE PERSONNEL CENTER**

Franke, Albert E.  *Comparative Analysis of Traditional Versus Computer-Based Survey Instrument Response.*  AFIT/GIR/ENV/01M-08.  Faculty Advisor: Major Mark A. Ward, DSN: 785-3636, ext 3329.  Sponsor: HQ AFPC/DPSAS.

**AIR FORCE SAFETY CENTER**


**AIR FORCE TECHNICAL APPLICATIONS CENTER**

*Beauregard, Joseph E.  *Modeling Information Assurance.*  AFIT/GOR/ENS/01M-03.  Faculty Advisor: Dr. Richard F. Deckro, DSN: 785-6565, ext 4325.  Sponsor: DARPA & AFTAC.

Kinser, Aaron M.  *Simulating Wet Deposition of Radiocesium from the Chernobyl Accident.*  AFIT/GM/ENP/01M-05.  Faculty Advisor: Lt Col Michael K. Walters, DSN: 785-3636, ext 4681.  Sponsor: AFTAC/TMAR.

Schueneman, Richard A.  *Oxidation at Surfaces of Uranium Oxide Particles.*  AFIT/GNE/ENP/01M-05.  Faculty Advisor: Dr. Larry W. Burggraf, DSN: 785-3636, ext 4507.  Sponsor: AFTAC.

**AIR FORCE WEATHER AGENCY**

Green, Bradford S.  *Validation and Assessment of DMSP Electron Temperatures in the Topside Ionosphere.*  AFIT/GAP/ENP/01M-03.  Faculty Advisor: Major Devin J. Della-Rose, DSN: 785-3636, ext 4514.  Sponsor: HQAFWA/XOGS.


3.3.8 USAF DIRECT REPORTING UNITS

AIR FORCE COMMUNICATION AGENCY

Bonner, Robert J. *Using Direct-Sequence Spread Spectrum in a Wired Local Area Network.  AFIT/GE/ENG/01M-02.  Faculty Advisor: Major Rusty O. Baldwin, DSN: 785-3636, ext 4582.  Sponsor: AFCA/ITAI.*


AIR FORCE ACADEMY


3.3.9 ARMY

US ARMY SAFETY CENTER


3.3.10 DEPARTMENT OF DEFENSE

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY


*Beauregard, Joseph E. *Modeling Information Assurance.  AFIT/GOR/ENS/01M-03.  Faculty Advisor: Dr. Richard F. Deckro, DSN: 785-6565, ext 4325.  Sponsor: DARPA & AFTAC.*


Colvard, Michael J. *An Analysis of the Interaction Between the J3 and J4 War Planning Staffs During the Phases of Crisis Action Planning.  AFIT/GLM/ENS/01M-06.  Faculty Advisor: Lt Col Stephen M. Swartz, DSN: 785-6565, ext 4285.  Sponsor: DARPA/ISO.*


GOVERNMENT SUPPLY AGENCY


JOINT WARFARE ANALYSIS CENTER


NATIONAL RECONNAISSANCE OFFICE


OFFICE OF SECRETARY OF DEFENSE


UNDERSECRETARY OF DEFENSE FOR ENVIRONMENTAL SECURITY


UNITED STATESCOMMANDER IN CHIEF PACIFIC COMMAND


USSTRATCOM


3.3.11 DEPARTMENT OF ENERGY

3.3.12 NATIONAL SECURITY AGENCY


Marcum, Mary K.  Redundant Wavelet-Based Image Restoration Using a Prior Information.  AFIT/GE/ENG/01M-17.  Faculty Advisor: Major Roger L. Claypoole, Jr., DSN: 785-3636, ext 4625.  Sponsor: NAIC/ GTN.


3.3.13 DAYTON AREA GRADUATE STUDIES INSTITUTE

Baltacioglu, Erhan.  The Distributer's Three-Dimensional Pallet-Packing Problem: A Human Intelligence-Based Heuristic Approach.  AFIT/GOR/ENS/01M-02.  Faculty Advisor: Dr. James T. Moore, DSN: 785-6565, ext 4337.  Sponsor: DAGSI.


Mckay, Michael R.  Time-Resolved Photoluminescence of InAs/GaInSb Quantum Well Lasers.  AFIT/GAP/ENP/OIJ-02.  Faculty Advisor: Lt Col M. A. Marciniak, DSN: 785-3636, ext 4529.  Sponsor: DAGSI.


3.3.14 NATIONAL CONTRACT MANAGEMENT ASSOCIATION


3.3.15 THE OHIO STATE UNIVERSITY

*Shipman, William C.  The Development of A Finite Element Program To Model High Cycle Fatigue In Isotropic Plates.  AFIT/GAE/ENY/01M-08.  Faculty Advisor: Dr. Anthony N. Palazotto, DSN: 785-255-3636 x4599.  Sponsor: Department of Aerospace Engineering & Aviation, The Ohio State University.
3.3.16 ROYAL AUSTRALIAN AIR FORCE

3.4 FUNDED RESEARCH PROJECTS

AGNES, Maj GREGORY S., (ENY)
“Experimental Investigation of Active Inflatable Struts,” Sponsor: SAF, Funding: $58,413.45.
“Conformal Membrane Reflectors for Deployable Optics (Joint with Cornerstone Research Group),” Sponsor: SAF/FMBMB-AFOY, Funding: $25,000.00.
“Experimental Investigation of Active Inflatable Struts,” Sponsor: SAF/FMBMB-AFOY, Funding: $40,000.00.

BALDWIN, Maj RUSTY O., (ENG)

BAUER, KENNETH W., (ENS)
“Pilot Candidate Selection Method (PCSM) Study,” Sponsor: AETC/SAS, Funding: $2,000.00.

BIROS, Lt Col DAVID P., (ENV)

BONS, Maj JEFFREY P., (ENY)
“Real Surface Effects on Turbine Heat Transfer and Aerodynamic Performance,” Sponsor: Mississippi State University, Funding: $40,203.00.

BROTHERS, Lt Col CHARLES P., (ENG)
“VHSIC Hardware Description Language Development Support,” Sponsor: AFRL/IFTC, Funding: $15,000.00.

BURGRAFF, LARRY W., (ENP)
CANFIELD, Lt Col ROBERT A., (ENY)

CHAMBAL, Capt STEPHEN P., (ENS)
“Memorandum of Agreement Between the C-17 System Program Office and Department of Operational Sciences, Air Force Institute of Technology (AFIT) Strategic Brigade Airdrop Simulation Completion Study,” Sponsor: AFMC ASC/VC (AV/FS), Funding: $10,306.22.
“Enhancement and Analysis Upgrade of COBRA Analytical Software,” Sponsor: AFOTEC, Funding: $11,000.00.

CHILTON, Lt Col LAWERENCE K., (ENC)

CUNNINGHAM, WILLIAM A., (ENS)

DECKRO, RICHARD F., (ENS)
“Memorandum of Agreement with the Center for Operation Research,” Sponsor: NSA, Funding: $20,000.00.
“Modeling Surveillance,” Sponsor: SAF, Funding: $0.00.
“Joint Warfare Analysis Center (JWAC) Memorandum of Agreement,” Sponsor: DOD JWAC, Funding: $14,040.00.

DELOACH, Maj SCOTT A., (ENG)
“Agent Development Environments for Large-Scale, Multi-Agent, Distributed Mission Planning and Execution in Complex Dynamic Environment,” Sponsor: AFOSR/PIF, Funding: $43,114.82.

FRANKE, MILTON E., (ENY)
“Nozzle-Diffuser Model Study,” Sponsor: AFRL/SBL, Funding: $15,000.00.

GOLTZ, MARK N., (ENV)
“Bioenhanced In-Well Vapor Stripping To Treat Trichloroethylene,” Sponsor: AETC, Funding: $1,370.02.
“In-Situ Catalytic Groundwater Treatment Using Pd-Catalysts and Horizontal Treatment Wells,” Sponsor: DOD NFESC, Funding: $84,197.50.
GUNSCH, GREGG H., (ENG)


GUSTAFSON, STEVEN C., (ENG)


“Low Voltage NLO Polymer Photonics,” Sponsor: DAGSI, Funding: $5,332.00.

HARITOS, Col GEORGE K., (ENY)


HENGEHOLD, ROBERT L., (ENP)

“Mid-Infrared Quantum Well Optoelectronic Devices,” Sponsor: DAGSI, Funding: $40,048.00.


“AFRL Research Support,” Sponsor: AFRL/PRP, Funding: $8,000.00.

HILL, Lt Col RAYMOND R., (ENS)


“Global Information Compression Methodology & Implementation for Enhanced C4ISR System Integration,” Sponsor: DAGSI, Funding: $60,640.00.

HUFFINES, Maj GARY R., (ENP)


JACOBS, Lt Col TIMOTHY M., (ENG)


JACQUES, Lt Col DAVID R. (ENY)
“Cooperative Behavior and Control for Autonomous Munitions,” Sponsor: AFRL/MN, Funding: $10,000.00.
“Unmanned Aerospace Vehicles,” Sponsor: AFRL/VACA, Funding: $5,000.00.
“Cooperative Behavior and Control for Autonomous Munitions,” Sponsor: AFRL/MNGN, Funding: $10,000.00.

JODOIN, Maj VINCENT J., (ENP)

KING, PAUL I., (ENY)
“Pulse Detonation Wave Propagation Through a Tube Array,” Sponsor: AFRL/PRF, Funding: $5,000.00.
“Propagating Potential Disturbances in Turbomachinery,” Sponsor: AFOSR, Funding: $30,312.70.

LAMONT, GARY B., (ENG)

LAPUMA, Maj PETER T., (ENV)
“Bioavailability of Chromate Containing Primers Paints,” Sponsor: AFMC/CEVV, Funding: $26,000.00.
LOTT, Lt Col JAMES A., (ENG)


LOWTHER, Lt Col RONALD P., (ENP)


MAGEE, Maj ERIC P., (ENG)


MALL, SHANKAR, (ENY)

“Micro and Nano Scale Systems,” Sponsor: DAGSI, Funding: $10,255.00.

“High Cycle Fretting Fatigue,” Sponsor: AFRL/ML, Funding: $81,147.47.

“Effects of Moisture On The Mechanical Behavior Of Fabric-Reinforced Ceramic Matrix Composites,” Sponsor: AFRL/PRTC, Funding: $30,000.00.

“High Cycle Fretting Fatigue,” Sponsor: AFRL/ML, Funding: $105,000.00.


MILLER, Lt Col MIKEL M., (ENG)

“MEMS Gyro and Direct Correlator Output Processing GPS Receiver,” Sponsor: AFRL/SNAR, Funding: $12,000.00.

“Ultra-Tight Integration of Inertial Measurement Unit (IMU) and Global Positioning System (GPS) Receivers,” Sponsor: AFOSR/NM, Funding: $12,000.00.

“GNC Laboratory Upgrades to Enhance GPS/INS Jamming Capabilities,” Sponsor: 746 Test Squadron, Funding: $30,000.00.

MILLER, Lt Col JOHN O., (ENS)

“Interim Brigade Combat Team (IBCT),” Sponsor: DOD US Army, Funding: $5,000.00.

MOORE, JAMES T., (ENS)

NANRY, LTC WILLIAM P. (ENS)

“Adaptive Interfaces,” Sponsor: DAGSI, Funding: $2,903.00.

OXLEY, MARK E., (ENC)

“Model-Based Object Recognition Using Multiple Sensor Modalities and Invariant Techniques,” Sponsor: DAGSI, Funding: $26,813.00.


PACHTER, MEIR N., (ENG)


“Advanced Target Tracking Research,” Sponsor: AFRL/SNF, Funding: $30,000.00.

“Unmanned Aerospace Vehicles,” Sponsor: AFRL/VACA, Funding: $5,000.00.

“Cooperative Behavior and Control for Autonomous Munitions,” Sponsor: AFRL/MNGN, Funding: $10,000.00.


PALAZOTTO, ANTHONY M., (ENY)


PERRAM, GLEN P., (ENP)

“Rotational Energy Transfer in Silane for SiN film deposition,” Sponsor: AFOSR/NL, Funding: $4,471.46.


“High Temperature Superconducting Wires for Power Generation: Pulsed Laser Deposition Plume Dynamics,” Sponsor: AFOSR/NE, Funding: $16,000.00.


PETROSKY, LTC JAMES C., (ENP)

“Studies On The Effects Of Nuclear Environments On Equipment And Personnel,” Sponsor: DOD DTRA, Funding: $10,000.00.
QUINN, DENNIS W., (ENC)

RAINES, Maj RICHARD A., (ENG)
“Analysis of Networks,” Sponsor: DODJWAC, Funding: $10,960.00.

RAQUET, Maj JOHN F., (ENG)
“Field Test of Low-Power GPS Jammer Location System,” Sponsor: AFOSR/NM, Funding: $11,700.79.

RIES, HEIDI R., (ENR)

ROH, WON B., (ENP)

SHELLEY, MICHAEL L., (ENV)
“Abiotic and Biochemical Contaminant Fate and Transport,” Sponsor: DAGSI, Funding: $32,958.00.

SPENNY, CURTIS H., (ENY)

TEMPLE, MICHAEL A., (ENG)
“Technical Support, Radar/Target Identification Systems,” Sponsor: AFRL/SNF, Funding: $15,000.00.

TUTTLE, RONDALD F., (ENP)
“MASINT,” Sponsor: DIA, Funding: $100,000.00.

WEEKS, DAVID E., (ENP)
“Nonadiabatic Molecular Reaction Dynamics of B + H2,” Sponsor: AFOSR, Funding: $72,625.00.

WEISEL, WILLIAM E., (ENV)
WHITE III, Maj EDWARD D., (ENS)

“Modeling R&D Budgets and Expenditures,” Sponsor: DOD OSD/PAE, Funding: $20,000.00.

WOOD, AIHUA K., (ENC)


YEO, YUNG KEE, (ENP)


“Ion Implantation and Metallic Contact Studies for Application to AlGaN Optoelectronic Devices,” Sponsor: AFOSR/PIF, Funding: $8,954.83.
3.5 REFEREEED JOURNAL PUBLICATIONS

[*Denotes multiple faculty authors.]

BAILEY, WILLIAM F., (ENP)


BAUER, KENNETH W., JR., (ENS)


BLECKMANN, CHARLES A., (ENV)


BONS, Maj JEFFREY P., (ENY)


BROTHERS, Lt Col HEIDI S., (ENV)


BURGGRAF, LARRY W., (ENP)


CHAMBAL, Capt STEPHEN P., (ENS)


CHILTON, Lt Col LAWRENCE K., (ENC)

CLAYPOOLE, Maj, ROGER L., JR., (ENG)


D’AZZO, JOHN J., (ENG)


DECKRO, RICHARD F. (ENS)


DELOACH, Maj SCOTT A., (ENG)


FRANKE, MILTON E., (ENP)


GOLTZ, MARK N., (ENV)


GUSTAFSON, STEVEN C., (ENG)


HENSENBERG, ROBERT L. (ENP)


HILL, Lt Col RAYMOND R. (ENS)


HOLT, Maj DANIEL T., (ENV)


HUFFINES, Maj GARY R., (ENP)


KAROUFEH, JEFFREY P., (ENS)


KING, PAUL I., (ENY)


KLOEBER, JACK M., (ENS)


LAPUMA, Lt Col (Sel) PETER T., (ENV)

MAGEE, Maj ERIC P., (ENG)

MALL, SHANKAR, (ENY)

MATHEWS, KIRK A., (ENP)

MILLER, Lt Col J.O., (ENS)

MOORE, JAMES T., (ENS)
PACHTER, MEIR, (ENG)


PALAZOTTO, ANTHONY N., (ENY)


PERRAM, GLEN P. (ENP)


RAINES, Maj RICHARD A, (ENG)


RAQUET, Maj JOHN F., (ENG)


ROH, WON B., (ENP)

SHELLEY, MICHAEL L., (ENV)

TEMPLE, MICHAEL A., (ENG)

TORVIK, PETER J. (ENY)

WALTERS, Lt Col MICHAEL K., (ENP)

WHITE, Maj EDWARD D. III, (ENC)

WOLF, PAUL J., (ENP)

WOOD, AIHUA W., (ENC)
YEO, YUNG KEE, (ENP)


3.6 OTHER PUBLICATIONS

[*Denotes multiple faculty authors.]

ADVANCED STUDIES IN AIR MOBILITY

(NOTE: The Graduate Mobility Operations (GMO) non-thesis management program is a component of Air Mobility Command’s Advanced Study of Air Mobility executive development program. Students in the GMO program write graduate research papers supporting topics of interest to AMC.)


Budzik, Anthony C. Analysis of Military Engagement Options in the Central Asian Republics. Faculty Advisor: Dr. Craig M. Brandt, DSN 785-6565, ext 4. Sponsor: HQ AMC/DO.


Gilster, Thomas C. Preparing Air Force Mobility Experts for Humanitarian Assistance and Disaster Relief. Faculty Advisor: Maj Stephan P. Brady, DSN 785-6565, ext 4367. Sponsor: HQ USAF/XP.


Hertz, Martin R. Joint Logistics Component Commander and the Mobility Air Forces. Faculty Advisor: Maj Marvin A. Arostegui. Sponsor: HQ AMC/XP.


Reese, David L. Commercial Airlift Augmentation: An Organizational Study. Faculty Advisor: Dr. James T. Moore, DSN 785-6565, ext 4337. Sponsor: HQ AMC/DOY.


AGNES, Maj GREGORY S., (ENY)


BAILEY, WILLIAM F., (ENP)


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BALDWIN, Maj RUSTY O., (ENG)


BAUER, KENNETH W., JR., (ENS)


BLECKMANN, CHARLES A., (ENV)


BONS, Maj JEFFREY P. (ENY)


CANFIELD, Lt Col ROBERT A., (ENY)


CLAYPOOLE, Maj ROGER L., JR., (ENG)


COLLINS, Maj, PETER J., (ENG)


DECKRO, RICHARD F., (ENS)


DELOACH, Maj SCOTT A., (ENG)


FRANKE, MILTON E., (ENY)


GOLTZ, MARK N., (ENV)


**GREINER, Capt MICHAEL A., (ENV)**


**GUSTAFSON, STEVEN C., (ENG)**


**HARTRUM, THOMAS C., (ENG)**


**HENGEHOLD, ROBERT L., (ENP)**


**HILL, Lt Col RAYMOND R., (ENS)**


**HOLT, Maj DANIEL T., (ENV)**

HOUPIS, CONSTANTINE H., (ENG)


HUGHSON, Lt Col MONTGOMERY C., (ENY)


JACOBS, Lt Col TIMOTHY M., (ENG)


JACQUES, Lt Col DAVID R., (ENY)


JOHNSON, Lt Col ALAN W., (ENS)


KING, PAUL I., (ENY)


LAMONT, GARY B., (ENG)


**LANNING, Maj JEFFREY W., (ENS)**


**LIEBST, BRADLEY S., (ENY)**


**LOTT, Lt Col JAMES A., (ENG)**


**MAGEE, Maj ERIC P., (ENG)**


**MALL, SHANKAR, (ENY)**


MARCINIAK, Lt Col MICHAEL A., (ENP)


MAYBECK, PETER S., (ENG)


MILLER, Lt Col J.O., (ENS)


MILLER, Lt Col MIKEL, (ENG)


OXLEY, MARK E., (ENC)


PACHTER, MEIR, (ENG)


PERRAM, GLEN. P., (ENP)


RAINES, Maj RICHARD A., (ENG)


RAQUET, Maj JOHN F., (ENG)


REHG, Maj MICHAEL T., (ENV)


ROH, WON B. (ENP)


SHELLEY, MICHAEL L. (ENV)


SMITH, Lt Col E. PRICE, (ENY)


SPENNY, CURTIS H., (ENY)


SWARTZ, Lt Col STEPHEN M., (ENS)


TEMPLE, MICHAEL A., (ENG)


TRAGESSER, STEVEN G., (ENY)


TERZUOLI, ANDREW J., JR., (ENG)


WALTERS, Lt Col MICHAEL K., (ENP)


WARD, Maj MARK A., (ENV)


WEEKS, DAVID E., (ENP)


WIESEL, WILLIAM E., (ENY)


3.7 SUBSTANTIAL CONSULTATIONS

[*Denotes duplicate entry, multiple faculty authors.]

AGNES, Maj GREGORY S. (ENY)

*Terzuoli, A.J., Jr. (co-PI), G. Agnes, (co-PI), and P.J. Collins. “Comparison of Alternate Wing Control Surfaces.”
  Sponsors: DARPA, ASC/EN, AFRL/SN, RATSCAT.

BALDWIN, Maj RUSTY O., (ENG)

Baldwin, R.O. Air Force Representative for Joint Staff/J6 NETWARS Technical Advisory Group and Member of Architecture and Standards Committee for NETWARS Communications Simulation Effort.

  Sponsor: Air Force Communications Agency.

BIROS, Lt Col DAVID P., (ENV)


CANFIELD, Lt Col ROBERT A., (ENY)


CLAYPOOLE, Maj ROGER, JR., (ENG)

Claypoole, R., Jr. served as Image Processing Expert on the Opacity Science Advisory Committee for the Environmental Security Technology Certification Program. This program is run by Air Force Research Labs, AFRL/MLQL, Tyndall AFB FL.

Claypoole, R., Jr. supported the Maverick Missile Program Office (AAC/WMG) to improve maverick tracker performance in the presence of shadows.


COLLINS, Maj PETER J., (ENG)


*Terzuoli, A.J., Jr., (co-PI), G. Agnes, (co-PI), and P.J. Collins. “Comparison of Alternate Wing Control Surfaces.”
  Sponsors: DARPA, ASC/EN, AFRL/SN, RATSCAT.


CUNNINGHAM, WILLIAM A., (ENS)

Provided assistance to the AF Air Transportation Process Reengineering Team
DECKRO, RICHARD F., (ENS)

Consulted with a number of units and agencies in conjunction with thesis efforts and normal operations.


DELOACH, Maj SCOTT A., (ENG)


FRANKE, MILTON E., (ENY)


Franke, M. E and Mark Taylor. TRW Space Park, Redondo Beach, CA, Flow research.

Franke, M. E and William Walter. HYBRICRAFT technology.

Franke, M. E and Dr. K. Ghia. University of Cincinnati, Cincinnati, OH, Boundary layer research.

Franke, M. E and Dr. Richard Rivir. AFRL, Wright-Patterson AFB OH, Boundary layer research.

Franke, M. E and Dr. Patrick McDaniel. AFRL, Kirtland AFB NM, Alternate energy source for propulsion.

Franke, M. E and Gary Laughlin. Experimental aerodynamics.

Franke, M. E and Lt Col Cowan. AFRL, Wright-Patterson AFB OH, MEMS.


GOLTZ, MARK N., (ENV)


GUNSCHE, GREGG H., (ENG)

Gunsch, G.H. participant in Digital Forensics Workshop, 6-8 August 2001.


GUSTAFSON, STEVEN C., (ENG)

Gustafson, S.C. consultant to (Eglin AFB) on Maverick missile target shadow discrimination ($40,844), Sponsor: AAC/WMG


**HARTRUM, THOMAS C., (ENG)**


**HEMINGER, ALAN R., (ENV)**


**HILL, Lt Col RAYMOND R., (ENS)**


**JACOBS, Lt Col TIMOTHY M., (ENG)**


Jacobs, T.M. “Visualization of Collaborative Information Systems.” Sponsor: AFOSR/NM.


**LOTT, Lt Col JAMES A., (ENG)**


MAGEE, Maj ERIC P., (ENG)
Magee, E.P. consulting with the ABL Technology Branch (AFRL/DEBS) on ABL tracking and compensation.
Magee, E.P. consulting with the Maverick Missile Program Office (AAC/WMG) to improve maverick tracker performance in the presence of shadows.


MATHIAS, Maj KARL S., (ENG)
Mathias, K.S. advised on database system required to store and analyze UAV video. Sponsor: AFRL/IF.
Mathias, K.S. built information server software to support combat modeling and advised developers as they created client software to access server. Sponsor: AFRL/SNZW.
Mathias, K.S. advised virtual distributed laboratory contractor on proper method for collecting intelligence imagery information and began development of intelligent front-end for image analysis. Sponsor: AFRL/SNAS.
Mathias, K.S. advised on use of JAVA database systems with Master Air Attack Planning Tools and began development of tool to detect differences between Air Operation Center (AOC) databases. Sponsor: Command & Control Battlelab.


MAYBECK, PETER S., (ENG)

PACHTER, MEIR, (ENG)
Pachter, M. “Adaptive and Nonlinear Control.” Sponsor: AFOSR.
Pachter, M. “Kalman Filtering.” Sponsor: AFRL/SNAT
Pachter, M. “Cooperative Control.” Sponsor: DAGSI
Pachter, M. “Adaptive Optics.” Sponsor: AFRL/DEBA
Pachter, M. “Cooperative Control for UAVs.” Sponsor: AFRL/VACA
Pachter, M. “Cooperative Control for Air to Ground Munitions.” Sponsor: AFRL/MN
PERRAM, GLEN P., (ENP)


RAINES, Maj RICHARD A., (ENG)


RAQUET, Maj JOHN F., (ENG)


REHG, Maj MICHAEL T., (ENV)


SWARTZ, Maj STEPHEN M., (ENS)

Analysis of system reliability and availability for the F-16 System Program Office

TEMPLE, MICHAEL A., (ENG)


TERZUOLI, ANDREW J., JR., (ENG)

Terzuoli, A.J., Jr., OSU (PI), and WSU. “Foliage Penetration–Targets Under Trees Projects,” Sponsor: AFRL/SNA.


*Terzuoli, A.J., Jr., (co-PI), G. Agnes, (co-PI), and P.J. Collins. “Comparison of Alternate Wing Control Surfaces.” Sponsors: DARPA, ASC/EN, AFRL/SN, RATSCAT.


TUTTLE, RONALD F. (ENP)

3.8 PRESENTATIONS

[*Denotes duplicate entry, multiple faculty authors.]

AGNES, Maj GREGORY S., (ENY)


ANDREW, Col JOHN M., (ENS)


AROSTEGUI, Maj MARVIN A., (ENS)

Arostegui, Marvin A. “Analysis Techniques.” Short course given at USAFE Regional Supply Squadron, Sembach AB, Germany, January 2001 (four offerings).

Arostegui, Marvin A. “Supply Chain Management.” Short course given at USAFE Regional Supply Squadron, Sembach AB, Germany, January 2001 (two offerings).

Arostegui, Marvin A. “Supply Chain Management.” Short course given at 100th Supply Squadron, RAF Mildenhall, UK, January 2001 (three offerings).


BAILEY, WILLIAM F., (ENP)


BALDWIN, Maj RUSTY O., (ENG)


BAUER, KENNETH W., JR., (ENS)


BIROS, Lt Col DAVID P., (ENV)


BONS, Maj JEFFREY P., (ENY)


BRADY, Lt Col STEPHAN P., (ENS)


BROTHERS, Lt Col HEIDI S., (ENV)

BURGGRAF, LARRY W. (ENP)
Burggraf, L.W. SiC Surfaces and Clusters. Invited Physical Chemistry Seminar. Department of Chemistry, University of Cincinnati, 2 Feb 2001

CANFIELD, Lt Col ROBERT A., (ENY)

CHAMBAL, Capt STEPHEN P., (ENS)


Chambal, Stephen P. “Confidence Intervals and Hypothesis Testing.” Short course given at AF Operational Test and Evaluation Center (AFOTEC) Detachment 2, Eglin AFB, FL, October 2000.


CHILTON, Lt Col LAWRENCE K., (ENC)


CHRISSIS, JAMES W., (ENS)


CLAYPOOLE, Maj ROGER L., JR., (ENG)


COLLINS, Maj, PETER J., (ENG)


CUNNINGHAM, WILLIAM A., (ENS)


Cunningham, William A. “Civil Reserve Air Fleet and Strategic Mobility.” Presentation given at Introduction to Logistics Course, Wright-Patterson AFB OH, April 2001.


DECKRO, RICHARD F., (ENS)


DELLA-ROSE, Maj DEVIN J., (ENP)

Della-Rose, Devin J. The Space Environment, Space Weather Storms, and Effects on Technology. Address to Dayton Institute of Electrical and Electronics Engineers (IEEE) meeting, Dayton OH. 16 October 2001.

DELOACH, Maj SCOTT A., (ENG)


FRANKE, MILTON E., (ENY)


GALLAGHER, Lt Col MARK A., (ENS)


GOLTZ, MARK N., (ENV)


GUNSCH, GREGG H., (ENG)


HARTRUM, THOMAS C., (ENG)


HEMINGER, ALAN R., (ENV)


HENGHEHOLD, ROBERT L., (ENP)


HILL, Lt Col RAYMOND R., (ENS)


HUFFINES, Maj GARY R., (ENP)


JACOBS, Lt Col TIMOTHY M., (ENG)

JODOIN, Lt Col VINCENT J., (ENP)
JOHNSON, Lt Col ALAN W., (ENS)


KHAROUFEH, JEFFREY P., (ENS)


LAMONT, GARY B., (ENG)


LANNING, Maj JEFFREY W., (ENS)


*East, Julia A., Kenneth W. Bauer, Jr., and Jeffrey W. Lanning. “Feature Selection for Predicting Pilot Mental Workload,” Artificial Neural Networks in Engineering International Conference, St. Louis, MO, November 2000.

LAPUMA, Maj PETER T., (ENV)


LIEBST, BRADLEY S., (ENY)


LOTT, Lt Col JAMES A., (ENG)


LOWTHER, Lt Col RONALD P., (ENP)


MAGEE, Maj ERIC P., (ENG)


MALL, SHANKAR, (ENY)


MATHIAS, Maj KARL S., (ENG)

Mathias, K.S. taught a JAVA Short Course to AFIT/ENG and AFRL/IF, 26 Mar 01-1 Jun 01.

MARCINIAK, Lt Col MICHAEL A., (ENP)


MAYBECK, PETER S., (ENG)


MILLER, Lt Col J.O., (ENS)


MILLER, Lt Col MIKEL, (ENG)


MOORE, JAMES T., (ENS)


OXLEY, MARK E., (ENC)


PACHTER, MEIR, (ENG)


PALAZOTTO, ANTHONY, N., (ENY)


PERRAM, GLEN P., (ENP)


POTOCZNY, HENRY, (ENG)

Presented a program on cryptography to the Dayton Honor Seminars, 27 October 2000.

RAINES, Maj RICHARD A., (ENG)


RAQUET, Maj JOHN F., (ENG)


REED, Maj TIMOTHY S., (ENV)


REHG, Maj MICHAEL T., (ENV)


ROH, WON B., (ENP)


SHELLEY, MICHAEL L., (ENV)


SMITH, Lt Col E. PRICE, (ENY)

SWARTZ, Lt Col STEPHEN M., (ENS)


TEMPLE, Maj MICHAEL A., (ENG)


TERZUOLI, ANDREW J., JR., (ENG)


TRAGESSER, STEVEN G., (ENY)


WALTERS, Lt Col MICHAEL K., (ENP)


WEEKS, DAVID E., (ENP)


WIESEL, WILLIAM E., (ENY)


WOOD, AIHUA W., (ENC)


YEO, YUNG KEE, (ENP)


3.9 OTHER SIGNIFICANT PROFESSIONAL ACTIVITIES

AGNES, Maj GREGORY S., (ENY)
CoChair SPIE Damping and Isolation Conference, Program Committee SPIE Smart Structures Conference
AIAA Adaptive Structures TC Member
AIAA Gossamer Structures Working Group
ASME Adaptive Materials and Structures TC Member
Reviewed 8 journal papers, 2 Army proposals
Consulted for NASA Working Group on Solar Sail Technology, New Millenium Working Group,

ANDREW, Col JOHN M., (ENS)
Member, Air Force Analytic Community Steering Group
Member, Data and Model Management Steering Group
Member, AF Scientist and Engineer Career Program Executive Panel
Member, Developing Aerospace Leaders Advanced Degree Education Process Team

AROSTEGUI, Maj MARVIN A., (ENS)
Referee, Decision Sciences Institute (DSI) National Meeting, November 2000
Referee, 6th International Conference, DSI, 2001
Track Chair, 6th International Conference, DSI, 2001

BAUER, KENNETH W., JR., (ENS)
Referee, International Journal of Smart Engineering System Design
Referee, Military Operations Research
Referee, Artificial Neural Networks in Engineering International Conference, St. Louis, MO, November 2000

BONS, Maj JEFFREY P., (ENY)

BRADY, Lt Col STEPHAN P., (ENS)
Member, Collaborative Planning, Forecasting and Replenishment Committee, Voluntary Inter-Industry Commerce Standards Association
CANFIELD, Lt Col ROBERT A., (ENY)
Executive Council Secretary, American Institute of Aeronautics and Astronautics (AIAA) Dayton-Cincinnati Section.
Awards Chairman, AIAA Multidisciplinary Design Optimization Technical Committee.

CHAMBAL, Capt STEPHEN P., (ENS)
Referee, Journal of Quality Technology

CHRISSIS, JAMES W. (ENS)
Member, Policies and Procedures Committee, Institute for Operations Research and Management Sciences
Organized session for the National Meeting of the Institute for Operations Research and Management Sciences, Miami, FL, November 2001

CLAYPOOLE, Maj ROGER L., JR., (ENG)
Chairman of the IEEE Signal Processing Society (Dayton Section)
Secretary of the Dayton Section of the IEEE.

CUNNINGHAM, WILLIAM A., (ENS)
Editorial Review Board, *Journal of Transportation Management*
Editorial Board, *Journal of Marketing Theory and Practice*
Executive Member, Board of Directors, Tri Rivers Waterway Development Association

D’AZZO, JOHN J., (ENG)
D’Azzo, J. J., was appointed as External Examiner for the University of Hong Kong. He evaluated the doctoral dissertation entitled, “Evolutionary Design of Fuzzy-Logic Controllers for Overhead Cranes,” for the PhD candidate Cheung Tai Yam.

DECKRO, RICHARD F. (ENS)
Editor, *Military Operations Research* (as of 15 June 2001)
Associate Editor, *Military Operations Research* (through 14 June 2001)
Area Editor, Service Systems, *Computers & Industrial Engineering*
Editorial Advisory Board, *Computers & Operations Research*
Editorial Advisory Board, *IEEE Transactions on Engineering Management*
Chair, Working Group 8 (Information Operations/Information Warfare), 69th Military Operations Research Society Symposium, Annapolis, MD, June 2001

Chair, Bylaws, Policies, and Procedures Committee, Institute for Operations Research and Management Sciences (INFORMS)

Secretary/Treasurer, Military Applications Society, INFORMS


Member, Military Operations Research Society Publication Committee

Delegate, 12th France/US Simulation and Operations Research Symposium

Referee for numerous journals

FRANKE, MILTON E., (ENY)

Chair, Committee on Organization and Rules (COR). COR is a committee of the Board of Governors

American Society of Mechanical Engineers (ASME International).

ASME International representative to American Association for the Advancement of Science.

Member of the AIAA Technical Committee on Weapon Systems Effectiveness

GALLAGHER, Lt Col MARK A., (ENS)

Director, Military Operations Research Society

Chair, Prize Committee, Military Operations Research Society

Associate Editor, Military Operations Research

GOLTZ, MARK N., (ENV)

Member, Science Advisory Committee, U.S. EPA’s Great Lakes/Mid-Atlantic Hazardous Substance Research Center.

City of Beavercreek Environmental Advisory Committee.

Consulting Associate Professor at Stanford University.

HEMINGER, ALAN R., (ENV)

Track Chair, IASTED Collaborative Technologies Symposium (CTS 2000), October 2000.

Subject matter expert for Defense Leadership and Management Program (DLAMP); evaluated DLAMP class at George Mason University, 5-6 April 2001.

Member, Management Information Systems Program Advisory Board, University of Dayton (since 1996)

HENGEBIOLD, ROBERT L. (ENP)

Member of the Executive Committee and Honors and Awards Chair of the Ohio Section of the American Physical Society.
HILL, Lt Col RAYMOND R., (ENS)

Associate Editor, Military Operations Research


HUFFINES, Maj GARY R., (ENP)

Vice President, Wright Memorial Chapter, American Meteorology Society.

HUGHSON, Lt Col MONTGOMERY C., (ENY)

Session Chair, CFD (Computational Fluid Dynamics) Techniques I, Dayton-Cincinnati Aerospace Science Symposium, Dayton OH, March 2001

JACQUES, Lt Col DAVID R., (ENY)

Member, Guidance Navigation and Control Technical Committee, American Institute of Aeronautics and Astronautics.

Summer Research Professor, AFRL/VACA.

JOHNSON, Lt Col ALAN W., (ENS)

Referee, Naval Research Logistics

Technical reviewer for management science textbook for John Wiley and Sons

LANNING, Maj JEFFREY W., (ENS)

Referee, Journal of Quality Technology

LIEBST, BRADLEY S., (ENY)

Member, Dayton-Cincinnati AIAA Executive Council.

Member, 2001 AIAA Cincinnati-Dayton Aerospace Symposium Committee.

President, Honors Seminars of Metropolitan Dayton.

MAGEE, Maj ERIC P., (ENG)

AFIT Signal Processing Representative for the WSU PhD Oversight Committee.

ENG representative on the Outreach Committee.

DAGSI academic advisor.

MAYBECK, PETER S., (ENG)

Chaired the IEEE Dayton Section Student Branch Cross-Fertilization Meeting, enhancing the communication among area colleges and the Dayton Section.

Dayton Section IEEE Student Activities Chairman and member of the Section’s Executive Committee.
MILLER, Lt Col J.O., (ENS)

Technical reviewer for the reference book, *Space Systems Modeling and Simulation*

MILLER, Lt Col MIKEL M., (ENG)

Elected the National Space Representative for the Institute of Navigation (ION) and served as the 2000-2001 Chairman of the Dayton Section of the ION.

MOORE, JAMES T., (ENS)

Associate Editor, *Military Operations Research*

Associate Editor, *Naval Research Logistics*

AFIT lead for research consortium (University of Texas at Austin, Air Mobility Command, and AFIT)

Co-Chair, Working Group 18 (Mobility and Transport of Forces), 69th Military Operations Research Society Symposium, Annapolis, MD, June 2001

OXLEY, MARK E., (ENC)

Member, Alumni Board for Department of Mathematics, Physics and Geography, Cumberland College, Williamsburg, KY.

PACTHER, MEIR, (ENG)

Member of AFOSR Review Panel

Member of AFRL/VACA AFOSR *Star Team*

PERRAM, GLEN P., (ENP)

Director, AFIT Center for Directed Energy

Panel Member, OSD High Energy Laser Joint Technology Office, Chemical Laser Working Group

Reviewer, Cooperative Grants Program of the U.S. Civilian Research and Development Foundation

Reviewer, Ballistic Missile Defense Organization, Small Business Innovative Research Proposals

RAINES, Maj RICHARD A., (ENG)

Text Book Reviewer, *Satellite Communications 2e*, J. Wiley Publishers

Technical Paper Referee, *IEEE Communications Letters*

ROH, WON B., (ENP)

Member, Review Panel for “the SRS/Fiber optic wavelength shifter” program, a Joint Technology Office (JTO) sponsored R&D program to Boeing Company, managed through NRL

SPENNY, CURTIS H., (ENY)

AFIT representative: Ohio Board of Registration for Professional Engineers and Surveyors.
AFIT representative, Ohio Space Grant Consortium.

Member, WSU PhD Program Coordinating Committee (Human Interaction with Complex Systems).

Scholarship Selection Committee, Honors Seminars of Metropolitan Dayton.

**SWARTZ, Lt Col STEPHEN M., (ENS)**

Referee, *Production and Operations Management*

Session/track chair and discussant for Production and Operations Management Society and Decision Sciences Institute conferences

**TERZUOLI, ANDREW J., JR., (ENG)**

Local Chapter Chair for Joint IEEE Societies APS, MTT, GRS.
3.10 SPECIAL AWARDS OR SPECIAL RECOGNITION

3.10.1 FACULTY

BAUER, KENNETH W., (ENS)

Received the 2000 Gage H. Crocker Outstanding Professor Award as the individual who made the most significant contribution to the AFIT mission.

BIROS, Lt Col DAVID P., (ENV)

Air Force Association, Wright Memorial Chapter, 2001 Senior Military Officer of the Year.

BONS, Maj JEFFREY P., (ENY)

Co-recipient of the 2001 AFRL Scientific/Technical Achievement Team Award.
Co-recipient of AFRL/PR’s Annual S.D. Heron Award for Basic Research, 2000.

BRADY, Lt Col (sel) STEPHAN P., (ENS)

Received the 2000 Professor Ezra Kotcher Award for significant, substantive contribution to curriculum or instruction development within AFIT.

CANFIELD, Lt Col ROBERT, (ENY)

Associate Fellow, American Institute of Aeronautics and Astronautics, Jan 2000.

CLAYPOOLE, Maj ROGER L., (ENG)

Air University Company Grade Officer of the Year, 2000.


D’AZZO, JOHN J., (ENG)

Associate Fellow of the American Institute of Aeronautics and Astronautics.

DECKRO, RICHARD F., (ENS)

Selected as Editor, *Military Operations Research*


GALLAGHER, Lt Col MARK A., (ENS)

Promoted to Associate Professor of Operations Research.
GOLTZ, MARK N., (ENV)
Awarded Institute of Environmental Science and Research International Fellowship

GRIFFIS, Maj STANLEY E., (ENS)
Awarded the 2001 University of Arkansas Supply Chain Management Research Center Doctoral Dissertation Proposal Award

GUSTAFSON, STEVEN C., (ENG)

HILL, Lt Col RAYMOND R., (ENS)
Promoted to Associate Professor of Operations Research
Received the 2000 General Bernard A. Schriever Award for outstanding contributions to the advancement of aerospace power, technology, and doctrine

JACQUES, Lt Col DAVID R., (ENY)
Member of AFRL/VACA Star Team receiving award for basic research from AFOSR.

JOHNSON, Lt Col ALAN W., (ENS)
Promoted to Associate Professor of Logistics Management

LOTT, Lt Col JAMES A., (ENG)

MALL, SHANKAR, (ENY)

MATHEWS, KIRK A., (ENP)
Promoted to Professor of Nuclear Engineering

MOORE, JAMES T., (ENS)
Granted tenure
Inducted as an Eminent Engineer into Tau Beta Pi, the national engineering honor society

NANRY, COL WILLIAM P., (ENS)
Selected by the AFIT Student Association as the Fall 2000 “Instructor of the Quarter” for the Graduate School of Engineering and Management.
PACHTER, MEIR, (ENG)

Received the 2000 Special Act/Service Award for his contributions in the field of flight control while working in the flight control while working in the Control Theory and Optimization Branch of the Air Vehicles Directorate. AFRL/VACA.

Received the 2000 Affiliate Societies Council’s Outstanding Engineers and Scientists Award for research in aircraft formation flight control, adaptive and reconfigurable flight control, differential games, and signal processing for GPS navigation and electronic warfare.

Elected an Associate Fellow of AIAA.

Nominated for the AFRL/VA 2000 Foulois Award.

PALAZOTTO, ANTHONY N., (ENY)

Associate Editor AIAA journal

RAINES, Maj RICHARD A., (ENG)

Received the Air Force Commendation Medal for outstanding achievement in the development and presentation of the AFIT Warrior Brief to senior leaders of the Air Force, January 2001.


REHG, Maj MICHAEL T., (ENV)


SWARTZ, Lt Col STEPHEN M., (ENS)

Recognized as the Outstanding Operations Research Educator by the AFIT Student Chapter of the Institute for Operations Research and the Management Sciences

TEMPLE, MICHAEL A., (ENG)


TERZUOLI, ANDREW J., JR., (ENG)

IEEE Certificate of Appreciation

WALTERS, Lt Col MICHAEL K., (ENP)

Promoted to Associate Professor of Atmospheric Physics
3.10.2 STUDENTS

BALTACIOGLU, 1Lt ERHAN, TURKISH AF (ENS)

Received the Military Operations Research Society (MORS) Graduate Research Award for research that led to demonstration of, or potential for, increased operating effectiveness of currently available or near term assets.

BENNETT, Capt SHEILA G., (ENV)


BOONE, Capt CHRISTOPHER, (ENS)

Received the Dr. Anthony D’Angelo Student Leadership Award given to a member in each graduating class in recognition of the student whose leadership and mentorship contributions to his/her fellow students are judged superior.

DRAB, Capt JESS W., (ENY)


FILCEK, Capt PAUL G., (ENS)

Received the Louis F. Polk Award for advanced contributions in his professional field and reflecting the highest standards of academic and professional accomplishment.

GALBREATH, Capt CHARLES S., (ENY)


HARTSFIELD, Capt CARL R., (ENY)


MARTINEZ, Capt STEVEN L., (ENS)

Received the Lt Edwin E. Aldrin, Sr., Award given in recognition of the student who has displayed exceptional leadership characteristics.

Received the International Society of Logistics Jerome G. Peppers, Jr., C.P.L., Outstanding Student Award given to a member in each graduating class whose academic record and contributions to the field of logistics are judged superior.

NOEL, Capt JEREMY B., (ENS)

Received the Dean’s Award given in recognition of the ENS master's thesis that reflects the most exceptional research contribution to scientific, management, and engineering knowledge.
RENFRO, Capt ROBERT S., II, (ENS)


SCHWABACHER, Capt GREGORY J., (ENY)


ZALEWSKI, Maj DANIEL E., (ENP)

APPENDICES

APPENDIX A FACULTY CREDENTIALS

AGNES, GREGORY S., Maj, Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BSAE, Rensselaer Polytechnic Institute, 1989; MSAE, University of Maryland, 1991; PhD, Engineering Mechanics, Virginia Tech, 1997. Major Agnes previously worked in the Structural Dynamics Branch of the Air Force Research Laboratory. His research interests center around inflatable/rigidizable space structures, active and passive vibration suppression, smart structures, and nonlinear dynamics. He has published numerous conference and journal papers and is a member of the AIAA, ASEE and ASME. Tel. 937-255-6565, x4317 (DSN: 785-6565 x 4317), email = Gregory.Agnes@afit.edu

ANDREW, JOHN M., Col, Assistant Professor of Operations Research and Head, Dept of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1976; SM, Harvard University, 1982; PhD, Harvard University, 1985. Col Andrew’s research interests include training simulations and stochastic processes. He is a member of the Institute for Operations Research and Management Science (INFORMS) and the Military Operations Research Society (MORS). Tel. 937-255-6565, x4329 (DSN 785-6565, x4329), email = John.Andrew@afit.edu

ANTHENIEN, RALPH A. JR., Capt, Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, University of California at Berkeley, 1993; MS UC Berkeley, 1996; PhD, UC Berkeley, 1998. Capt. Anthenien’s research interests include developing compact combustors for gas turbine engines, smoldering combustion, combustion in microgravity and micro-scale combustion. Tel. 937-255-3636 x4643 (DSN: 785-3636 x4643), email = Ralph.Anthenien@afit.edu

AROSTEGUI, MARVIN A., Maj, Assistant Professor of Logistics Management, Dept of Operational Sciences (AFIT/ENS); BA, Applied Mathematics, University of California at Berkeley, 1987; MS, Logistics Management, Air Force Institute of Technology, 1992; PhD, Business Administration, University of Houston, 1997. Maj Arostegui’s research interests include repairable inventory management, supply chain management, metaheuristics (tabu search, simulated annealing, and genetic algorithms).

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SWARTZ, STEPHEN M., Lt Col, Assistant Professor of Logistics Management, Dept of Operational Sciences, (AFIT/ENS); AAS, Community College of the Air Force, 1984; AS, Western Oklahoma State College, 1989; BPA, Embry-Riddle Aeronautical University, 1985; MA, Webster University, 1988; MS, Air Force Institute of Technology, 1991; PhD, Michigan State University, 1999. Maj Swartz’ research interests include aviation maintenance systems management, optimization of production systems, production management and scheduling, project management and scheduling, dynamic and static modeling, and theory of constraints education. Tel. 937-255-6565, x4285 (DSN 785-6565, x4285), email = Stephen.Swartz@afit.edu
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TEMPLE, MICHAEL A., Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BSE, Southern Illinois University, 1985; MSE, Southern Illinois University, 1986; PhD, Air Force Institute of Technology, 1993. Dr. Temple’s research interests include electromagnetic propagation phenomenology, Adaptive and Interferometric Clutter Erasure (ACE/ICE), High Range Resolution (HRR) radar, precision emitter location, digital and spread spectrum communications, and complex waveform generation and analysis. His sponsored research efforts in Command, Control, Communications and Intelligence (C3I), radar signal/signature processing, and Electronic Warfare (EW), as adopted by and/or transitioned to DoD and other national agencies, has provided nearly $1M in research and technology benefits. Tel. 937-255-3636, x4703 (DSN: 785-3636, x4703), email = Michael.Temple@afit.edu

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TORVIK, PETER J., Professor Emeritus of Aerospace Engineering and Engineering Mechanics, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, University of Minnesota, 1960; MS, University of Minnesota, 1962; PhD, University of Minnesota, 1965; BA, Wright State University, 1980. Professor Torvik is a specialist in theory of elasticity, wave propagation, shock and vibration, impact damage in aircraft systems, laser-material interactions, and aircraft survivability/vulnerability. His primary research interests include structural dynamics, specifically, damping, impact, and penetration mechanics. Dr. Torvik is the author of some 60 technical papers and reports and 20 other publications. He served as Head of the Department of Aeronautics and Astronautics, 1980-1990. He is the recipient of the AF Meritorious Civilian Service Award and the AF Exceptional Civilian Service Award. Dr. Torvik is a Fellow of AIAA and also a Fellow of the ASME. Tel. 937-255-3636, x4740 (DSN: 785-3636, x4740), email = Peter.Torvik@afit.edu
TRAGESSER, STEVEN G., Assistant Professor of Aerospace Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BSAE, University of Illinois, 1992; MSAE, Purdue University, 1994; PhD, Purdue University, 1997. Prior to joining the AFIT faculty, Dr. Tragesser worked in the Space Guidance and Navigation Section at Draper Laboratory. His research interests include guidance of hypersonic vehicles, trajectory design and optimization, dynamics of tethered spacecraft, and analysis of other complex dynamical systems. Dr. Tragesser has published several refereed journal and conference papers and is a member of AIAA. Tel. 937-255-6565, x4286 (DSN: 785-6565, x4286), email = Steven.Tragesser@afit.edu

TUTTLE, RONALD F., Associate Professor of Nuclear Engineering and Chair, Measurement And Signature Intelligence (MASINT) Technologies, Dept. of Engineering Physics, (AFIT/ENP); BS, Chemical Engineering, University of Missouri (Columbia), 1968; MS, Nuclear Engineering, University of Missouri (Columbia), 1970; PhD, Nuclear Engineering, University of Missouri (Columbia), 1980. Dr. Tuttle’s research areas are applications of active and passive remote sensing, spectroscopy, diagnostics, and signals processing to problems in intelligence collection and exploitation. Other areas of interest are nuclear weapon effects and space nuclear power systems modeling and mechanics of aerosols. He has published in both unclassified and classified refereed archival journals and conference proceedings. Tel. 937-255-3636, x4536 (DSN 785-3636, x4536), email = Ronald.Tuttle@afit.edu

WALTERS, MICHAEL K., Lt Col, Assistant Professor of Atmospheric Physics, Department of Engineering Physics (AFIT/ENP); BS, Zoology, Texas A&M University, 1976; MS, Meteorology, Texas A&M University, 1985; PhD, Meteorology, Texas A&M University, 1988. Lt Col Walters has chaired 17 MS theses in four years at AFIT in the areas of battlefield-scale cloud forecasting, contrail forecasting, forecast support for electro-optical precision guided munitions, thunderstorm and downburst wind forecasting for space-launch support, ensemble-based probability of precipitation forecasting, transport and diffusion modeling, and mesoscale numerical weather prediction. He is a member of the American Meteorological Society and the American Geophysical Union. Tel. 937-255-3636, x4681 (DSN: 785-3636, x4681), email = Michael.Walters@afit.edu

WARD, MARK A., Maj, Assistant Professor of Information Resource Management, Department of Systems and Engineering Management, (AFIT/ENV); BS, Texas A&M University; MS, Air Force Institute of Technology, 1992; PhD, Business Administration, Southern Illinois University at Carbondale, 1999. Maj Ward previously worked at Headquarters Air Mobility Command in the C-17 acquisition program. His research interests center around information systems productivity and numerous organizational studies issues. He is a member of MENSA and Beta Gamma Sigma. Tel. 937-255-3636, x4742 (DSN: 785-3636, x4742), email = Mark.Ward@afit.edu

WEEKS, DAVID E., Associate Professor of Physics, Department of Engineering Physics (AFIT/ENP); BA Physics with honors, Colgate University, 1983; MS, Physics, Georgia Institute of Technology, 1985; PhD Physics, University of Arkansas, 1989. Dr. Weeks’ research interests include the development of time dependent wave packet methods to model the quantum mechanics of simple chemical reactions and to compute associated state to state reactive scattering matrix elements. A second area of interest centers on the application of k.p theory together with the envelope function approximation to model the electronic and optical properties of quantum well heterostructures. Tel. 937-255-3636, x4561 (DSN: 785-3636, x4561), email = David.Weeks@afit.edu

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WIESEL, WILLIAM E., JR., Professor of Astronautical Engineering, Department of Aeronautics and Astronautics, (AFIT/ENY); BS, University of Massachusetts, 1970; MS, Harvard University, 1972; PhD, Harvard University, 1974. Dr. Wiesel’s research interests include orbital mechanics and astrodynamics, chaotic systems, estimation and control, planetary astronomy, stability theory, and optimal control. Dr. Wiesel is the author of Spaceflight Dynamics, the leading introductory text on astronautical engineering. He has, also, authored over 25 technical papers and has been a member of the department for 24 years. Tel. 937-255-6565, x4312 (DSN: 785-6565, x4312), email = William.Wiesel@afit.edu
WILEY, VICTOR D., Capt, Assistant Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BS, Texas A&M University, 1991; MS, Air Force Institute of Technology, 1996; PhD, The University of Texas at Austin, 2001. Capt Wiley’s research interests include metaheuristics, applications of group theory to metaheuristic search neighborhoods, and program management. Tel. 937-255-6565, x4367 (DSN 785-6565, x4367), email = Victor.Wiley@afit.edu.

WOLF PAUL J., Associate Professor of Physics, Department of Engineering Physics, (AFIT/ENP); and Assistant Dean, Graduate School of Engineering and Management, (AFIT/EN); BS, Regis College, 1978; MS, Air Force Institute of Technology, 1979; PhD, Air Force Institute of Technology, 1985. Dr. Wolf’s research interests are concentrated in experimental atomic/molecular spectroscopy, reactive and non-reactive collision kinetics, thin film deposition processes by laser with applications toward laser devices, ionospheric and atmospheric chemistry, environmental monitoring, and thin film devices. He has advised two PhD and five MS students during his five years on the AFIT faculty and published over 20 papers. Tel. 937-255-3636, x4560 (DSN: 785-3636, x4560), email = Paul.Wolf@afit.edu.

WOOD, AIHUA W., Associate Professor of Mathematics, Department of Mathematics and Statistics (AFIT/ENC); BS, Beijing University, 1984; MS, University of Connecticut, 1988; PhD, University of Connecticut, 1990. Dr. Wood's research interests include elliptic partial differential equations, electromagnetic wave propagation, finite element methods, and photonic crystals. Dr. Wood is currently funded by the Air Force Office of Scientific Research to investigate scattering and propagation of electromagnetic waves, and is the Principal Investigator for an AFRL/DAGSI Research Project to develop a hybrid Maxwell solver for wide-band radar signature prediction for low observable targets. Tel. 937-255-3636, x4521 (DSN: 785-3636, x4521), email = Aihua.Wood@afit.edu.

WOOD, WILLIAM D., Major, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering (AFIT/ENG); BSEE, University of Arizona, 1985; MSEE, Air Force Institute of Technology, 1990; PhD, Air Force Institute of Technology, 1997. Major Wood’s research interests include low observables and electromagnetic scattering and radiation. His areas of expertise include computational electromagnetics, wave interaction, and radar measurement technology. He is a Member of the IEEE, author or co-author of 12 refereed archival journal and conference papers. Tel. 937-255-3636, x4639 (DSN: 785-3636, x4639), email = William.Wood@afit.edu.

YEO, YUNG K., Professor of Physics, Dept of Engineering Physics, (AFIT/ENP); BS, Seoul National University, 1961; PhD, University of Southern California, 1972. Professor Yeo's research interests include solid state physics, especially characterization of the electrical and optical properties of elemental, compound, ternary, and quaternary semiconductors using techniques such as Hall effect measurement, deep level transient spectroscopy, cathodoluminescence, and photoluminescence. Professor Yeo has published over 70 articles in archival journals, several technical reports, presented over 150 papers at professional conferences, and holds one patent. He is a reviewer for the Applied Physics Letters and the Journal of Applied Physics. He is currently funded by the AFOSR to study wide band gap semiconductors such as SiC and GaN. This work involves collaborative effort with the Air Force Wright Laboratory, Oklahoma State University, and Virginia Polytechnic Institute and State University. He has directed the research of eleven PhD students and sixteen MS students. He received the Ezra Kotcher Award for 1990, received the Gage H. Crocker Outstanding Professor Award for 1992, and received General Bernard A. Schriever Award for 1997. Tel. 937-255-3636, x4532 (DSN 785-3636, x4532), email= Yung.Yeo@afit.edu.
## APPENDIX B  DEPARTMENT SYMBOLS AND LOCATIONS

<table>
<thead>
<tr>
<th>Symbol</th>
<th>School Office/Department</th>
<th>Room</th>
<th>Telephone, (DSN)</th>
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<tr>
<td>EN</td>
<td>Office of the Dean</td>
<td>100</td>
<td>(937) 255-3025 (DSN: 785-3025)</td>
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<tr>
<td></td>
<td>Dr. Robert A. Calico, Jr., Dean</td>
<td></td>
<td>(937) 255-3025 (DSN: 785-3025)</td>
</tr>
<tr>
<td></td>
<td>Col Wayne F. Hallgren, Associate Dean</td>
<td></td>
<td>(937) 255-4372 (DSN: 785-4372)</td>
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<td></td>
<td>Col James M. Norris, Associate Dean for Plans &amp; Programs</td>
<td></td>
<td>(937) 255-3636, x4553 (DSN: 785-3636, x4553)</td>
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<td></td>
<td>Dr. Paul J. Wolf, Assistant Dean for Academic Affairs</td>
<td></td>
<td>(937) 255-3636, x4560 (DSN: 785-3636, x4560)</td>
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<tr>
<td>ENR</td>
<td>Office of Research and Consulting</td>
<td>103</td>
<td>(937) 255-3633 (DSN: 785-3633)</td>
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<td></td>
<td>Dr. Heidi R. Ries, Associate Dean for Research</td>
<td></td>
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<tr>
<td>ENC</td>
<td>Department of Mathematics and Statistics</td>
<td>114</td>
<td>(937) 255-3098 (DSN: 785-3098)</td>
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<td></td>
<td>Dr. Alan V. Lair</td>
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<tr>
<td>ENG</td>
<td>Department of Electrical and Computer Engineering</td>
<td>218</td>
<td>(937) 255-2024 (DSN: 785-2024)</td>
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<td></td>
<td>Col Donald R. Kitchen</td>
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<td>ENP</td>
<td>Department of Engineering Physics</td>
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<td>Dr. Robert L. Hengehold</td>
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<tr>
<td>ENS</td>
<td>Department of Operational Sciences</td>
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<td>(937) 255-2549 (DSN: 785-2549)</td>
</tr>
<tr>
<td></td>
<td>Col John M. Andrew</td>
<td></td>
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<td>ENV</td>
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<tr>
<td></td>
<td>Lt Col Alfred E. Thal, Jr.</td>
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<tr>
<td>ENY</td>
<td>Department of Aeronautics and Astronautics</td>
<td>201</td>
<td>(937) 255-3069 (DSN: 785-3069)</td>
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<tr>
<td></td>
<td>Dr. Bradley S. Liebst</td>
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APPENDIX C  ABBREVIATIONS FOR ORGANIZATIONS

There are a number of abbreviations for organizations that are used in this report. This alphabetical listing will only include selected organizations. The Defense Technical Information Center has an acronym listing at http://www.dtic.mil/dtic/dtic-acronyms.html. The department symbols for the Graduate School of Engineering are found in Appendix B.

ACC  Air Combat Command
AETC  Air Education and Training Command
AFCEE  Air Force Center For Environmental Excellence
AFCESA  Air Force Civil Engineer Support Agency
AFIT  Air Force Institute of Technology
AFMC  Air Force Materiel Command
AFOSR  Air Force Office of Scientific Research
AFOTEC  Air Force Operational Test and Evaluation Center
AFRL  Air Force Research Laboratory
AFSPC  Air Force Space Command
AFTAC  Air Force Technical Applications Center
AIA  Air Intelligence Agency
AMC  Air Mobility Command
ASC  Aeronautical Systems Center
AU  Air University
DAGSI  Dayton Area Graduate Studies Institute
DISA  Defense Information Systems Agency
DoD  Department of Defense
DOE  Department of Energy
HQ AU  Headquarters, Air University
PACAF  Pacific Air Forces
SAF  Secretary of the Air Force
USAF  United States Air Force
APPENDIX D  AFIT HISTORY

The Institute
AFIT traces its roots to the early days of powered flight when it was apparent that the progress of military aviation depended upon special education in this new science. In 1919, the Air School of Application was established at McCook Field in Dayton, Ohio, the home of Orville and Wilbur Wright.

When Congress authorized creation of the Air Corps in 1926, the school was renamed the Air Corps Engineering School and moved to Wright Field in 1927. Shortly after Pearl Harbor, the school suspended classes, but it reopened as the Army Air Forces Engineering School in 1944 to conduct a series of accelerated courses to meet emergency requirements.

In 1946, the Army Air Force Institute of Technology was established as part of the Air Materiel Command. The Institute was composed of two colleges: Engineering and Maintenance, and Logistics and Procurement. These colleges were later redesignated the College of Engineering Sciences and the College of Industrial Administration.

When the Air Force became a separate service in 1947, the Institute was renamed the Air Force Institute of Technology. That same year, the School of Civil Engineering Special Staff Officer's Course began. In 1948, civilian institution programs were transferred to AFIT.

In 1950, command jurisdiction of AFIT shifted from Air Materiel Command to Air University (AU) with headquarters at Maxwell AFB, Alabama. The Institute, however, remained at what was now known as Wright-Patterson AFB. In 1951, the two AFIT colleges were combined into the Resident College.

The Institute established a logistics education program at WPAFB in 1955, and The Ohio State University conducted the first courses on a contract basis. In 1958, AFIT began a series of short courses in logistics as part of the Air Force Logistics Command (AFLC) Education Center. Later that year, the School of Logistics became a permanent part of AFIT.

In 1954, the 83d Congress authorized the Commander, Air University, to confer degrees upon persons in the AFIT Resident College. The college was later divided into the School of Engineering, the School of Logistics, and the School of Business. The first undergraduate engineering degrees were granted in 1956, and the first graduate degrees in business in 1958. The School of Business programs were transferred to civilian universities in 1960. In 1963, the School of Logistics was redesignated the School of Systems and Logistics. The Civil Engineering Center was also redesignated as the Civil Engineering School.

In 1967, AFIT became a member of the Dayton Miami Valley Consortium (DMVC), which later changed its name to Southwestern Ohio Council for Higher Education (SOCHE). The council is an association of colleges, universities, and industrial organizations in the Dayton area which are united to promote educational advancement. AFIT has traditionally been active in both the council and in other community and interinstitutional programs.

AFIT's flexibility is such that it adjusts quickly to changing Air Force requirements. The faculty, comprised of highly qualified military and civilian personnel, stay abreast of projected Air Force
operations, and the programs are continually updated to offer its students the latest available material. For example, an Air Force Software Review in 1989 led to AFIT programs in software engineering and software systems management barely a year later. When environmental concerns culminated in the Pollution Prevention Act of 1990, AFIT designed and implemented both graduate and professional continuing education programs in environmental engineering management. In 1994, Air Force Weather requested a meteorology program designed specifically for the warfighter, and in less than one year AFIT delivered a graduate education program in military meteorology with an initial enrollment of fourteen officers.

In 1995, AFIT’s Graduate School of Engineering became a member of the Dayton Area Graduate Studies Institute (DAGSI) along with the graduate engineering schools of Wright State University and the University of Dayton. The purpose of the partnership was to provide, through the combined engineering and research resources of the three schools, educational and research opportunities at the MS and PhD level. The University of Cincinnati and the Ohio State University became affiliate members of DAGSI in 1997. DAGSI provides a continuing source of advanced technological expertise for the region covered by the five schools. The DAGSI program covers a broad spectrum of over 30 major research areas and benefits from the support of business and industry, government, and civic sectors of the Dayton Region.

Early in Fiscal Year 97, the Secretary of the Air Force made a decision to close AFIT resident graduate schools. In anticipation of closure, AFIT developed and began a transition and closure plan. Resident Phd. students scheduled for FY97 were diverted to the Civilian Institution Program and a transition plan for actual closure was developed, identifying manpower positions for elimination in FYs 97 through 00.

In April 1998, after a visit to AFIT, the Acting Secretary of the Air Force, F. Whitten Peters, announced a reversal of the Air Force decision to terminate the AFIT resident graduate programs. AFIT will continue a restructuring initiative begun in FY96 that will size the resident graduate programs to meet the Air Force education requirements of the FY03 force structure. As part of this restructuring, the two resident graduate schools were merged into the Graduate School of Engineering and Management on Oct 1, 1999.

Research

Creative, relevant research programs are essential to both graduate education and the continuous modernization of military capability. Consequently, research has been an important element of the educational enterprise throughout AFIT’s history, often in collaboration with scientists of the Air Force Research Laboratories co-located at Wright-Patterson Air Force Base. The implementation of the PhD program at AFIT in 1965 resulted in significant growth of the research activities on the AFIT campus. The expanded role of sponsored research at AFIT was recognized by creating the Office of Research for the School of Engineering in 1989 and the Office of Research and Consulting for the School of Logistics and Acquisition Management in 1990 (now the Office of Research and Consulting in the Graduate School of Engineering and Management).

Several key projects are illustrative of AFIT’s research impact on the Air Force, the Department of Defense, and the nation. For more than twenty years, the Department of Engineering Physics has conducted strong research in high-energy laser technology and delivered mission ready graduates to AF laboratories. Two PhD graduates served as directors of the Air Force laser program, and four PhD graduates led the team demonstrating a 40 kW laser for anti-satellite missions. The AFIT laser weapons research group is now supporting the development of the Airborne Laser, based on the Chemical Oxygen Iodine Laser co-invented by an AFIT graduate. Other work of the laser weapons research group includes the development of lasers for remote sensing and counter-proliferation applications, new optical diagnostic methods, and studies of ionization mechanisms in the thermosphere for satellite survivability.
In support of the Air Force's and DoD's environmental restoration programs, AFIT established a remediation research program in the early 1990s involving faculty from four departments. Since that time, over 50 student theses on the subject have been published and graduates have gone on to manage remediation programs at bases and major commands throughout the Air Force. Research contributions include a field demonstration of a bioremediation technology that destroys trichloroethylene, the most common groundwater contaminant at DoD installations, and some of the first studies of the biodegradability of tolyltriazole, an aircraft deicing fluid additive recently recognized as an important groundwater contaminant at airfields throughout the nation.

AFIT researchers in the Department of Operational Science, responding to the needs of the C-17 Systems Program Office (SPO), developed an object-oriented simulation model to quantify the rate of paratrooper/vortex interaction for various airdrop formations, enhanced through high-resolution computer visualization of model results. The research results were briefed to the C-17 SPO Director, the Director of Test and Evaluation for the Office of the Secretary of Defense, the Undersecretary of the Army for Operations Research, and the Commander of the XVIII Airborne Corps. Utilizing their C-17 airdrop simulation model, the AFIT researchers also led a preflight study of the multinational CENTRAZBAT '97 Exercise; their analysis was praised by the XVIII Airborne Corps Commander as "dead-on!"

The Department of Aeronautics and Astronautics has an ongoing research program studying high cycle fatigue, the cause of the most dominant issue relevant to gas turbine engine damage. Currently, there exists only a cursory understanding of damage, crack initiation, and crack propagation under high cycle fatigue conditions. It has been recognized that a significant number of failures of engine components are attributable to fretting damage, such as dove-tailed blades, including press-fit or interlocking connections which are subjected to surface wear and fretting fatigue. The study in collaboration with the Materials and Manufacturing Directorate of the Air Force Research Laboratory uses an integrated experimental/analytical numerical modeling approach to investigate the high cycle fretting fatigue behavior of titanium alloys.

In December 1998, AFIT broke ground for a $8.9 million engineering laboratory. The facility will be used for experimental research in aeronautical engineering, electrical engineering, applied physics and environmental science. The lab officially opened in March, 2001 and will enable AFIT to continue its tradition of high quality research programs in support of the Air Force Mission.
APPENDIX E  INFORMATION FOR OBTAINING A COPY OF A THESIS

Copies of theses with unlimited distribution may be obtained from either of the following agencies depending on the particular circumstances.

U.S. Government employees, individuals affiliated with a research and development activity within the U.S. Government, or its associated contractors, subcontractors, or grantees, under current U.S. Government contract, can order from:

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8725 John J. Kingman Road, STE 0944
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Phone: 1-800-225-3842
Website: http://www.dtic.mil/

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NATIONAL TECHNICAL INFORMATION SERVICE
U.S. Department of Commerce
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Springfield, VA 22161
Phone: 1-800-553-6847
Website: http://www.ntis.gov

Information that is needed to obtain a given document is: 1) author, 2) title, 3) publication date, and 4) reference to the document as an Air Force Institute of Technology thesis.

General inquiries concerning faculty and student research at the Air Force Institute of Technology may addressed to:

Office of Research and Consulting
Air Force Institute of Technology
2950 P Street, Bldg 640, Room 103
Wright Patterson AFB, OH 45433-7765
Phone: (937) 255-3633 (DSN: 785-3633)
Website: http://www.afit.edu
Email: afit.enrsta@afit.edu
The views expressed in this report are those of the authors and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

14. ABSTRACT

This report summarizes the research activities of the Air Force Institute of Technology’s Graduate School of Engineering and Management. It describes research interests and faculty expertise; lists student theses/dissertations; identifies research sponsors and contributions; and outlines the procedures for contacting the school. Included in the report are: faculty publications, conference presentations, consultations, and funded research projects. Research was conducted in the areas of Aeronautical and Astronautical Engineering, Electrical Engineering and Electro-Optics, Computer Engineering and Computer Science, Systems and Engineering Management, Operational Sciences, Engineering Physics and Logistics and Acquisition Management.

15. SUBJECT TERMS

Air Force Institute of Technology, Research Report 2001

16. SECURITY CLASSIFICATION OF:

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<th>b. ABSTRACT</th>
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17. LIMITATION OF ABSTRACT

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18. NUMBER OF PAGES

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Dr. Heidi R. Ries, ENR

19b. TELEPHONE NUMBER (Include area code)

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