

# **ENHANCEMENT REVIEW REPORT**

## **PHYSICS AND ASTRONOMY**

**FY 2004-05**

### **Introduction**

The Physics and Astronomy Review Panel consisting of Dr. Laurie McNeil, Professor of Physics and Chair of the Department of Physics and Astronomy, University of North Carolina at Chapel Hill; and Dr. Stephen Addison, Professor of Physics and Chair of the Department of Physics and Astronomy, University of Central Arkansas, met February 17-18, 2005 in Baton Rouge, Louisiana, to evaluate eighteen (18) proposals submitted to the Louisiana Board of Regents requesting funds through the Enhancement component of the Boards of Regents Support Fund.

The panel received the following materials prior to the visit: (1) all proposals and appropriate rating forms; (2) a summary of the proposals submitted listing titles, PIs, their institutions, funds requested, and so forth; (3) a copy of the previous report (FY 2001-02); and (4) the appropriate RFP containing criteria for evaluation. After studying all proposals, the panel met in Baton Rouge to review and evaluate them. During the review each proposal was discussed individually and its merits were evaluated with respect to criteria detailed in the RFP. Each proposal received a thorough and impartial review. Subsequent to the individual evaluations, the panel ranked all proposals and recommended funding levels for those deemed worthy of funding.

The eighteen (18) Physics and Astronomy proposals submitted in FY 2004-05 requested a total of \$1,911,489 in first-year funds. Because only \$992,350 is available, only ten (10) proposals were recommended for funding, four (4) of those at reduced levels. Had the Physics and Astronomy category been allocated more than \$992,350, the panel would have recommended full funding for some of the higher ranked proposals.

Table I contains a rank-order list of proposals highly recommended for funding, together with the recommended funding levels. Table II contains a list of proposals not recommended for funding. A detailed review of each proposal follows immediately after the tables. A summary of all proposals submitted (Appendix A) and a copy of the rating forms used in the evaluations (Appendix B) are attached at the end of the report.

**TABLE I  
PROPOSALS HIGHLY RECOMMENDED FOR FUNDING**

| <b>Rank</b>   | <b>Rating</b> | <b>Proposal Number</b> | <b>Institution</b> | <b>First-Year Funds Requested</b> | <b>First-Year Funds Recommended</b> | <b>Second-Year Funds Requested</b> | <b>Second-Year Funds Recommended</b> |
|---------------|---------------|------------------------|--------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|
| 1             | 95            | 005PHY-05              | LSU-S              | \$8,616                           | \$8,616                             |                                    |                                      |
| 2             | 94            | 009PHY-05              | TULANE & XAVIER    | \$151,695                         | \$141,695                           |                                    |                                      |
| 3             | 91            | 017PHY-05              | UNO                | \$108,000                         | \$108,000                           |                                    |                                      |
| 4             | 88            | 015PHY-05              | UNO                | \$253,000                         | \$253,000                           |                                    |                                      |
| 5             | 86            | 003PHY-05              | LSU-BR             | \$125,401                         | \$67,569                            | \$23,395                           | \$0                                  |
| 6             | 83            | 006PHY-05              | LSU-S              | \$30,707                          | \$30,707                            |                                    |                                      |
| 7             | 80            | 013PHY-05              | UNO                | \$119,530                         | \$74,340                            |                                    |                                      |
| 8             | 79            | 004PHY-05              | LSU-BR             | \$137,390                         | \$137,390                           |                                    |                                      |
| 9             | 77            | 010PHY-05              | TULANE             | \$121,033                         | \$121,033                           |                                    |                                      |
| 10            | 74            | 007PHY-05              | LA TECH & GSU      | \$62,500                          | \$50,000                            |                                    |                                      |
| <b>TOTAL:</b> |               |                        |                    | <b>\$1,117,872</b>                | <b>\$992,350</b>                    | <b>\$23,395</b>                    | <b>\$0</b>                           |

**TABLE II  
PROPOSALS NOT RECOMMENDED FOR FUNDING**

| <b>Rank</b>   | <b>Rating</b> | <b>Proposal Number</b> | <b>Institution</b> | <b>First-Year Funds Requested</b> | <b>First-Year Funds Recommended</b> | <b>Second-Year Funds Requested</b> | <b>Second-Year Funds Recommended</b> |
|---------------|---------------|------------------------|--------------------|-----------------------------------|-------------------------------------|------------------------------------|--------------------------------------|
| 11            | 67            | 011PHY-05              | ULL                | \$96,100                          | \$0                                 |                                    |                                      |
| 12            | 63            | 018PHY-05              | UNO                | \$138,800                         | \$0                                 |                                    |                                      |
| 13            | 61            | 016PHY-05              | UNO                | \$130,790                         | \$0                                 |                                    |                                      |
| 14            | 57            | 008PHY-05              | SU-BR              | \$135,000                         | \$0                                 |                                    |                                      |
| 15            | 54            | 014PHY-05              | UNO                | \$92,300                          | \$0                                 |                                    |                                      |
| 16            | 53            | 012PHY-05              | ULM                | \$30,194                          | \$0                                 |                                    |                                      |
| 17            | 46            | 001PHY-05              | Dillard            | \$95,637                          | \$0                                 |                                    |                                      |
| 18            | 43            | 002PHY-05              | Dillard            | \$74,796                          | \$0                                 |                                    |                                      |
| <b>TOTAL:</b> |               |                        |                    | <b>\$793,617</b>                  | <b>\$0</b>                          | <b>\$0</b>                         | <b>\$0</b>                           |

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 001PHY-05

INSTITUTION: Dillard University

TITLE OF PROPOSAL: Enhancement of Teaching and Research Laboratories in the Physics Department

## A. The Current Situation

(Total of 10 Points)

A.1 Yes X No \_\_\_\_\_  
A.2 2 (of 5 points)  
A.3 2 (of 5 points)

## C. Equipment

(Total of 10 Points)

C.1 3 (of 6 points)  
C.2 1 (of 1 point)  
C.3 1 (of 3 points)

## E. Economic and/or Cultural Development and Impact

(Total of 12 Points)

E.1 2  
E.2a 2 (For S/E)  
or (of 10 points)  
E.2b \_\_\_\_\_ (For NS/NE)

## B. The Enhancement Plan

(Total of 52 Points)

B.1 9 (of 20 points)  
B.2 9 (of 20 points)  
B.3 3 (of 5 points)  
B.4 1 (of 2 points)  
B.5 1 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 8 (of 12 points)

## F. Additional Funding Sources

(Total of 4 Points)

F.1 2 (of 4 points)

## G. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes X No \_\_\_\_\_

H. Total Score: 

|    |
|----|
| 46 |
|----|

 (of 100 points)

(Note: Proposals with a total score below 70 will not be recommended for funding.)

SPECIFIC BUDGETARY Requested Amount: \$95,637  
RECOMMENDATIONS: Recommended Amount: \$0

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel does not recommend funding this proposal for the purchase of instructional laboratory equipment. This equipment, designed for routine use in (primarily introductory) physics instructional laboratories, is of the sort that institutions should be expected to provide from their own resources. The proposal suggests that additional kits are needed to accommodate increased enrollment, but statistics supporting that claim are not given. The goal of sending more students to graduate school is mentioned, but again no statistics are given, nor are measurable objectives stated. The proposal contains a great deal of prose about the value of "minds-on" training (a pedagogical principle which the panel certainly supports), but very little discussion of exactly what techniques will be used and how the equipment will be used to support that training. The proposal is poorly written. Future proposals would be improved if faculty were to attend physics education research sessions at national or regional AAPT meetings and discuss ideas with other practitioners in the field.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

**PROPOSAL NUMBER:** 002PHY-05

**INSTITUTION:** Dillard University

**TITLE OF PROPOSAL:** Enhancement of Computational Fluid Dynamics Instruction and Research

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes   X   No \_\_\_\_\_  
 A.2   2   (of 5 points)  
 A.3   2   (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1   3   (of 6 points)  
 C.2   1   (of 1 point)  
 C.3   1   (of 3 points)

**E. Economic and/or Cultural Development and Impact**

(Total of 12 Points)

E.1   2   (of 2 points)  
 E.2a   2   (For S/E)  
 or \_\_\_\_\_ (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1   9   (of 20 points)  
 B.2   8   (of 20 points)  
 B.3   1   (of 5 points)  
 B.4   2   (of 2 points)  
 B.5   1   (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1   8   (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1   1   (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes   X   No \_\_\_\_\_

**H. Total Score:** 43 (of 100 points)

**(Note: Proposals with a total score below 70 will not be recommended for funding.)**

**SPECIFIC BUDGETARY** Requested Amount:   \$74,796    
**RECOMMENDATIONS:** Recommended Amount:   \$0  

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel does not recommend funding this proposal for the purchase of equipment for computational fluid dynamics research. The panel is not convinced of the utility of the equipment for the wide range of instructional uses mentioned in the proposal. If the institution wishes to introduce fluid dynamics into its curriculum, a hands-on lab might be a more effective way to do so. The purchase of a single software license appears inadequate (unless the license supports multiple concurrent users, although the proposal does not so state). Although there is vague discussion of improvement of teaching methodology that would result from the purchase, no specific description of the methods in question is given. The writing in this proposal is also very poor. The PIs should seek funding for routine computer laboratory equipment from private donors or other sources.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

**PROPOSAL NUMBER:** 003PHY-05

**INSTITUTION:** Louisiana State University And A&M College - Baton Rouge

**TITLE OF PROPOSAL:** A High Altitude Student Platform for Enhancing Student Research Training

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes   X   No \_\_\_\_\_  
 A.2     5     (of 5 points)  
 A.3     5     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     6     (of 6 points)  
 C.2     1     (of 1 point)  
 C.3     2     (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
 E.2a     7     (For S/E)  
 or (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1    18    (of 20 points)  
 B.2    16    (of 20 points)  
 B.3     5     (of 5 points)  
 B.4     1     (of 2 points)  
 B.5     4     (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1    11    (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     3     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes   X   No \_\_\_\_\_

**H. Total Score:** 86 (of 100 points)

**(Note: Proposals with a total score below 70 will not be recommended for funding.)**

|  |                            | <u>YEAR 1</u>    | <u>YEAR 2</u>   |
|--|----------------------------|------------------|-----------------|
| <b>SPECIFIC BUDGETARY RECOMMENDATIONS:</b> | <b>Requested Amount:</b>   | <u>\$125,401</u> | <u>\$23,395</u> |
|  | <b>Recommended Amount:</b> | <u>\$67,569</u>  | <u>\$0</u>      |

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel considers the building of a balloon-borne platform for student experiments to be a worthy expenditure. The opportunity for students to engage not only in the technical aspects of the experiments but also the project management is of great value to future members of the Louisiana workforce. However, we recommend that the salary support for the research scientist and the software engineer not be funded, but rather that these costs be borne by the institution or by the operating costs of research grants. Further, we recommend that the second year's funding not be allowed. We also urge the PIs to make greater efforts to develop industrial partners. The institutional match should be maintained in full.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

**PROPOSAL NUMBER:** 004PHY-05

**INSTITUTION:** Louisiana State University And A&M College - Baton Rouge

**TITLE OF PROPOSAL:** High-resolution Soft X-ray Photoemission Electron Microscope for  
Nano- and Bio-materials Research

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes     X     No \_\_\_\_\_  
 A.2     4     (of 5 points)  
 A.3     4     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     6     (of 6 points)  
 C.2     1     (of 1 point)  
 C.3     3     (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
 E.2a     7     (For S/E)  
 or \_\_\_\_\_ (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1    16    (of 20 points)  
 B.2    15    (of 20 points)  
 B.3     3     (of 5 points)  
 B.4     2     (of 2 points)  
 B.5     3     (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1    11    (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     2     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes     X     No \_\_\_\_\_

**H. Total Score:** 79 (of 100 points)

**(Note: Proposals with a total score below 70 will not be recommended for funding.)**

**SPECIFIC BUDGETARY**      **Requested Amount:**     \$137,390      
**RECOMMENDATIONS:**      **Recommended Amount:**     \$137,390    

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel recommends full funding of this proposal for the purchase of a photoemission electron microscope. The research program that it will enhance is a successful one, and the new equipment will allow the PIs to carry it into new areas. The project will also allow them to become more competitive in federal programs. The panel is somewhat surprised that the PIs appear not to have used such an instrument at national synchrotron facilities before proposing to obtain one for their local facility. The proposal does not explain how the new instrument will help the PIs build on their existing industrial partnerships, and the panel also notes that the quality of the writing in the proposal could be significantly improved.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

**PROPOSAL NUMBER:** 005PHY-05

**INSTITUTION:** Louisiana State University And A&M College - Shreveport

**TITLE OF PROPOSAL:** Enhancement of Deployment Capabilities

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes   X   No \_\_\_\_\_  
 A.2     5     (of 5 points)  
 A.3     5     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     6     (of 6 points)  
 C.2     1     (of 1 point)  
 C.3     3     (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
 E.2a     8     (For S/E)  
 or \_\_\_\_\_ (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1    20    (of 20 points)  
 B.2    20    (of 20 points)  
 B.3     4     (of 5 points)  
 B.4     2     (of 2 points)  
 B.5     4     (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1    11    (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     4     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes     X     No \_\_\_\_\_

**H. Total Score:** 95 (of 100 points)

**(Note: Proposals with a total score below 70 will not be recommended for funding.)**

|                           |                            |                    |
|---------------------------|----------------------------|--------------------|
| <b>SPECIFIC BUDGETARY</b> | <b>Requested Amount:</b>   | <u>  \$8,616  </u> |
| <b>RECOMMENDATIONS:</b>   | <b>Recommended Amount:</b> | <u>  \$8,616  </u> |

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel heartily recommends full funding for this modest proposal to purchase a mobile deployment platform and equipment from which to deploy robotics projects. The impact on student education is likely to be high, as it promotes project-based learning in a popular robotics program. The proposal is the only one submitted in this discipline that had a credible and detailed evaluation plan. The project also received a significant amount of matching support. Given its limited scope, the only improvement we would suggest would be for the applicant to seek greater industrial involvement.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 006PHY-05

INSTITUTION: Louisiana State University And A&M College - Shreveport

TITLE OF PROPOSAL: Listen Up! An Introduction to Radio Astronomy

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes   X   No \_\_\_\_\_  
 A.2     5     (of 5 points)  
 A.3     4     (of 5 points)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1     18     (of 20 points)  
 B.2     18     (of 20 points)  
 B.3     4     (of 5 points)  
 B.4     2     (of 2 points)  
 B.5     4     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     6     (of 6 points)  
 C.2     1     (of 1 point)  
 C.3     3     (of 3 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1     10     (of 12 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
 E.2a     6     (For S/E)  
 or \_\_\_\_\_ (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     0     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes     X     No \_\_\_\_\_

H. Total Score: 83 (of 100 points)

(Note: Proposals with a total score below 70 will not be recommended for funding.)

|                           |                            |                         |
|---------------------------|----------------------------|-------------------------|
| <b>SPECIFIC BUDGETARY</b> | <b>Requested Amount:</b>   | <u>    \$30,707    </u> |
| <b>RECOMMENDATIONS:</b>   | <b>Recommended Amount:</b> | <u>    \$30,707    </u> |

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel recommends full funding of this proposal for the purchase of a radio telescope kit for hands-on teaching of astronomy. The connections to the greater radio astronomy community that this will foster for the students are probably minimal, so we urge the PI to seek interactions with the National Radio Astronomy Observatory (NRAO) for that purpose. To the degree that the goal is to prepare students for careers in astronomy, the Xterm emulator is not particularly useful since that community is Linux-based rather than Windows-based. However, if the educational goals are broader, the Windows environment may be worthwhile. The panel commends the PI for attending the Chataqua course and finding ways to bring the information home for the betterment of her own institution. The course development plan presented in the proposal is of high quality and clearly shows an informed devotion to good teaching. While the project will not have a pronounced impact on the economy, the engineering skills that the students will develop will serve them well in the marketplace.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

**PROPOSAL NUMBER:** 007PHY-05

**INSTITUTION:** Louisiana Tech University & Grambling State University

**TITLE OF PROPOSAL:** Enhancing Nanotechnology Education with Hands-on Scanning  
Microscopy

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes   X   No \_\_\_\_\_  
 A.2     4     (of 5 points)  
 A.3     3     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     6     (of 6 points)  
 C.2     1     (of 1 point)  
 C.3     3     (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
 E.2a     5     (For S/E)  
 or \_\_\_\_\_ (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1    15    (of 20 points)  
 B.2    14    (of 20 points)  
 B.3     3     (of 5 points)  
 B.4     2     (of 2 points)  
 B.5     3     (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1    10    (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     3     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes     X     No \_\_\_\_\_

**H. Total Score:** 74 (of 100 points)

**(Note: Proposals with a total score below 70 will not be recommended for funding.)**

**SPECIFIC BUDGETARY**      **Requested Amount:**     \$62,500      
**RECOMMENDATIONS:**      **Recommended Amount:**     \$50,000    

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel recommends that this proposal for the purchase of an AFM/STM system be funded, but at the reduced level of \$50,000. The institutional match should be maintained at the level specified in the proposal. The difference between the funds requested and those recommended can be made up either by eliminating one or more components of the instrument or by increasing the institutional match. The instrument can certainly be used for teaching, but it will be far more useful in undergraduate research projects than in the wide range of courses (most without a lab component) that are listed in the proposal. The panel believes that the impact of the instrument on courses such as Quantum Mechanics is likely to be minimal. In the discussion of the national and international efforts in nanotechnology there seems to be little connection to the activities of the proposing institutions, and specifically to the equipment proposed for purchase.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

**PROPOSAL NUMBER:** 008PHY-05

**INSTITUTION:** Southern University and A&M College at Baton Rouge

**TITLE OF PROPOSAL:** Computation of Materials Properties for Electronics Technology  
and Engineering, Phase II (COMPETE-II)

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes   X   No \_\_\_\_\_  
A.2   2   (of 5 points)  
A.3   3   (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1   4   (of 6 points)  
C.2   1   (of 1 point)  
C.3   3   (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1   1   (of 2 points)  
E.2a   5   (For S/E)  
or \_\_\_\_\_ (of 10 points)  
E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1  11  (of 20 points)  
B.2  11  (of 20 points)  
B.3   3  (of 5 points)  
B.4   2  (of 2 points)  
B.5   3  (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1   8   (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1   0   (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes   X   No \_\_\_\_\_

**H. Total Score:** 57 (of 100 points)

**(Note: Proposals with a total score below 70 will not be recommended for funding.)**

**SPECIFIC BUDGETARY**      **Requested Amount:**   \$135,000    
**RECOMMENDATIONS:**      **Recommended Amount:**           \$0          

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel does not recommend funding of this proposal for the purchase of a supercomputer. The justification for the purchase primarily rests on routine computations that do not require the proposed computer resources. The underlying motivation for the request appears to be for support of the PI's research, which is claimed to be groundbreaking and to have significant impact on the condensed matter physics community. However, the paper in question appears to have received little notice since it was published in 1998, and the number and range of citations it has received to date is far too small to justify the claims made in the proposal. Additionally, the industrial involvement that the project would foster is purely speculative.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 009PHY-05

INSTITUTION: Tulane University & Xavier University

TITLE OF PROPOSAL: An Experimental Setup for Research and Education in Nanoscale  
and Surface Chemistry

## A. The Current Situation

(Total of 10 Points)

A.1 Yes X No \_\_\_\_\_  
A.2 5 (of 5 points)  
A.3 5 (of 5 points)

## C. Equipment

(Total of 10 Points)

C.1 6 (of 6 points)  
C.2 1 (of 1 point)  
C.3 3 (of 3 points)

## E. Economic and/or Cultural Development and Impact

(Total of 12 Points)

E.1 2 (of 2 points)  
E.2a 9 (For S/E)  
or (of 10 points)  
E.2b \_\_\_\_\_ (For NS/NE)

## B. The Enhancement Plan

(Total of 52 Points)

B.1 19 (of 20 points)  
B.2 19 (of 20 points)  
B.3 4 (of 5 points)  
B.4 2 (of 2 points)  
B.5 4 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 11 (of 12 points)

## F. Additional Funding Sources

(Total of 4 Points)

F.1 4 (of 4 points)

## G. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes X No \_\_\_\_\_

H. Total Score: 

|    |
|----|
| 94 |
|----|

 (of 100 points)

(Note: Proposals with a total score below 70 will not be recommended for funding.)

SPECIFIC BUDGETARY Requested Amount: \$151,695  
RECOMMENDATIONS: Recommended Amount: \$141,695

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The UHV chamber and analytical equipment requested in this proposal will allow the PIs to expand their research into a new area, adding chemical reactivity studies to the current structural ones. The PIs are highly qualified, and they have actively sought collaborators in other departments and institutions. The use of the equipment for student research (at the undergraduate and graduate levels) is well thought out. The panel recommends that this proposal receive partial funding of \$141,695, that the supplies budget be reduced by \$10,000, and that the institutional match be maintained in full. The panel suggests that securing additional funding would be facilitated by a better-developed plan for industrial involvement and support.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 010PHY-05

INSTITUTION: Tulane University

TITLE OF PROPOSAL: A Crystal Orientation System to Enhance Research and Education  
in Condensed Matter Physics at Tulane

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes     X     No \_\_\_\_\_  
A.2     4     (of 5 points)  
A.3     4     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     6     (of 6 points)  
C.2     1     (of 1 point)  
C.3     2     (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
E.2a     7     (For S/E)  
or \_\_\_\_\_ (of 10 points)  
E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1     15     (of 20 points)  
B.2     14     (of 20 points)  
B.3     3     (of 5 points)  
B.4     2     (of 2 points)  
B.5     3     (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1     10     (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     4     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes     X     No \_\_\_\_\_

H. Total Score: 77 (of 100 points)

(Note: Proposals with a total score below 70 will not be recommended for funding.)

SPECIFIC BUDGETARY Requested Amount:     \$121,033      
RECOMMENDATIONS: Recommended Amount:     \$121,033    

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel recommends fully funding this proposal for the purchase of a crystal orientation and polishing system. The PI is clearly an excellent crystal grower, and this equipment is vital to his research program. This "workhorse" equipment is likely to be used by a number of other research groups (in addition to that of the Co-PI). While the impact of the purchase of this equipment may seem obvious, the panel would have preferred to see a more complete evaluation plan. The panel notes with approval that the institution has offered a significant cash match to the requested funds.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 011PHY-05

INSTITUTION: University of Louisiana at Lafayette

TITLE OF PROPOSAL: Optical Profiling System for P-Beam Lithography Metrology

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes   X   No \_\_\_\_\_  
 A.2     3     (of 5 points)  
 A.3     3     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     4     (of 6 points)  
 C.2     1     (of 1 point)  
 C.3     2     (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
 E.2a     6     (For S/E)  
 or \_\_\_\_\_ (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1    13    (of 20 points)  
 B.2    13    (of 20 points)  
 B.3     3     (of 5 points)  
 B.4     2     (of 2 points)  
 B.5     3     (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1    10    (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     2     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes   X   No \_\_\_\_\_

**H. Total Score:** 67 (of 100 points)

(Note: Proposals with a total score below 70 will not be recommended for funding.)

|                           |                            |                            |
|---------------------------|----------------------------|----------------------------|
| <b>SPECIFIC BUDGETARY</b> | <b>Requested Amount:</b>   | <u>  \$96,100  </u>        |
| <b>RECOMMENDATIONS:</b>   | <b>Recommended Amount:</b> | <u>        \$0        </u> |

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel does not recommend funding for this proposal to purchase an optical profiling system. The rationale for the purchase of the proposed equipment rather than other instrumentation for examining microstructures (such as SEM) was not at all clear to the panel. The proposal contained many broad statements that pertained to the accelerator facility rather than the instrumentation in question. The statements about the educational uses of the instrument were vague, speculative, and unconvincing. The projections for growth in the number of student users do not match recent trends (presented in the proposal). A well-defined set of measurable objectives for the project would also have aided the panel. The industrial interaction is surprisingly weak, given the nature of the research. However, the panel commends the strong institutional support in the form of a cash match.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

**PROPOSAL NUMBER:** 012PHY-05

**INSTITUTION:** University of Louisiana at Monroe

**TITLE OF PROPOSAL:** Texture Analyzer for the Enhancement of Pharmaceutical Physics  
Research and Education at ULM

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes   X   No \_\_\_\_\_  
 A.2   2   (of 5 points)  
 A.3   2   (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1   4   (of 6 points)  
 C.2   1   (of 1 point)  
 C.3   2   (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1   1   (of 2 points)  
 E.2a   5   (For S/E)  
 or \_\_\_\_\_ (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1   10   (of 20 points)  
 B.2   10   (of 20 points)  
 B.3   3   (of 5 points)  
 B.4   1   (of 2 points)  
 B.5   2   (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1   8   (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1   2   (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes   X   No \_\_\_\_\_

**H. Total Score:** 53 (of 100 points)

**(Note: Proposals with a total score below 70 will not be recommended for funding.)**

**SPECIFIC BUDGETARY** Requested Amount:   \$30,194    
**RECOMMENDATIONS:** Recommended Amount:   \$0  

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel does not recommend funding this proposal for the purchase of a texture analyzer. This rather routine instrument, though it could be useful in training, does not appear likely to make a significant improvement in the capacity of the group to engage in meaningful research. The research projects are not clearly described and do not appear to be very well thought out. The PIs do not appear to have significant expertise in the use of the equipment. The panel recommends that the PIs seek to obtain an instrument (perhaps used) from an industrial sponsor.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 013PHY-05

INSTITUTION: University of New Orleans

TITLE OF PROPOSAL: Technology Enhancement for Heteroepitaxial Nanostructures  
Fabrication

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes   X   No \_\_\_\_\_  
 A.2     4     (of 5 points)  
 A.3     5     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     6     (of 6 points)  
 C.2     1     (of 1 point)  
 C.3     2     (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
 E.2a     7     (For S/E)  
 or \_\_\_\_\_ (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1    17    (of 20 points)  
 B.2    17    (of 20 points)  
 B.3     3     (of 5 points)  
 B.4     2     (of 2 points)  
 B.5     3     (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1    11    (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     0     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes     X     No \_\_\_\_\_

H. Total Score: 80 (of 100 points)

(Note: Proposals with a total score below 70 will not be recommended for funding.)

SPECIFIC BUDGETARY Requested Amount:    \$119,530     
 RECOMMENDATIONS: Recommended Amount:    \$74,340   

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel recommends that this proposal receive funding at \$74,340, without the inclusion of the RHEED system. The research program is of high quality and the equipment to be purchased will enhance it significantly. However, the panel notes that there was no institutional match. Additionally, the educational component of the proposal (beyond graduate research education) is very vague and speculative. The economic development plan consists of generalities. The panel suggests that if the PIs had considered more carefully who their economic partners are likely to be, they might have been able to secure matching funds for the project from them.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 014PHY-05

INSTITUTION: University of New Orleans

TITLE OF PROPOSAL: Structural Analysis Using the Atomic Pair Distribution Function

## A. The Current Situation

(Total of 10 Points)

A.1 Yes X No \_\_\_\_\_  
A.2 2 (of 5 points)  
A.3 3 (of 5 points)

## C. Equipment

(Total of 10 Points)

C.1 4 (of 6 points)  
C.2 1 (of 1 point)  
C.3 2 (of 3 points)

## E. Economic and/or Cultural Development and Impact

(Total of 12 Points)

E.1 1 (of 2 points)  
E.2a 5 (For S/E)  
or (of 10 points)  
E.2b \_\_\_\_\_ (For NS/NE)

## B. The Enhancement Plan

(Total of 52 Points)

B.1 11 (of 20 points)  
B.2 11 (of 20 points)  
B.3 2 (of 5 points)  
B.4 1 (of 2 points)  
B.5 4 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 6 (of 12 points)

## F. Additional Funding Sources

(Total of 4 Points)

F.1 1 (of 4 points)

## G. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes X No \_\_\_\_\_

H. Total Score: 

|    |
|----|
| 54 |
|----|

 (of 100 points)

(Note: Proposals with a total score below 70 will not be recommended for funding.)

SPECIFIC BUDGETARY Requested Amount: \$92,300  
RECOMMENDATIONS: Recommended Amount: \$0

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel does not recommend funding this proposal for the acquisition of X-ray equipment. The panel is unconvinced of the importance of the pair distribution function analysis that the equipment would make possible. The panel is also concerned that the PI does not appear to have the expertise necessary to carry out the calculations, though he is clearly a skilled synchrotron scientist. The use of the equipment and analysis in the furtherance of the institution's educational mission is only vaguely alluded to, and there is no mention whatsoever of industrial involvement.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

**PROPOSAL NUMBER:** 015PHY-05

**INSTITUTION:** University of New Orleans

**TITLE OF PROPOSAL:** Acquisition of a SQUID Magnetometer for Novel Magnetic  
Materials Investigation

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes     X     No \_\_\_\_\_  
 A.2     5     (of 5 points)  
 A.3     5     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     6     (of 6 points)  
 C.2     1     (of 1 point)  
 C.3     3     (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
 E.2a     6     (For S/E)  
 or \_\_\_\_\_ (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1     18     (of 20 points)  
 B.2     18     (of 20 points)  
 B.3     4     (of 5 points)  
 B.4     2     (of 2 points)  
 B.5     5     (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1     11     (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     2     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes     X     No \_\_\_\_\_

**H. Total Score:** 88 (of 100 points)

**(Note: Proposals with a total score below 70 will not be recommended for funding.)**

**SPECIFIC BUDGETARY** Requested Amount:     \$253,000      
**RECOMMENDATIONS:** Recommended Amount:     \$253,000    

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel notes that a SQUID magnetometer is a vital piece of equipment for this successful multi-PI research effort, and that the current instrument has reached the end of its useful life. We therefore recommend full funding. The panel considers parts of the proposal to be poorly written, with extensive discussion of the Materials Science PhD program rather than a focus on the instrument in question. The proposal also suffers from a lack of an economic development plan. The matching funds in the form of support for a postdoctoral researcher to operate the instrument are reasonable, and the panel strongly recommends that the University provide a statement assuring the Board that this commitment will extend beyond the one-year life of the grant.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

**PROPOSAL NUMBER:** 016PHY-05

**INSTITUTION:** University of New Orleans

**TITLE OF PROPOSAL:** Acquisition of a Spectroscopic Ellipsometer for Research and Education in the Optics of Nanoscale Materials

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes   X   No \_\_\_\_\_  
 A.2     3     (of 5 points)  
 A.3     3     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     4     (of 6 points)  
 C.2     1     (of 1 point)  
 C.3     3     (of 3 points)

**E. Economic and/or Cultural Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
 E.2a     5     (For S/E)  
 or \_\_\_\_\_ (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1    12    (of 20 points)  
 B.2    10    (of 20 points)  
 B.3     2     (of 5 points)  
 B.4     2     (of 2 points)  
 B.5     3     (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1     9     (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     2     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes     X     No \_\_\_\_\_

**H. Total Score:** 61 (of 100 points)

**(Note: Proposals with a total score below 70 will not be recommended for funding.)**

**SPECIFIC BUDGETARY**      **Requested Amount:**     \$130,790      
**RECOMMENDATIONS:**      **Recommended Amount:**           \$0          

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel does not recommend funding this proposal for the purchase of a spectroscopic ellipsometer. The panel is unconvinced that the equipment is properly suited to the purposes to which it would be put, given the level of modeling that is necessary to extract information from ellipsometric data. The section of the proposal regarding the potential of the program to achieve eminence contains more platitudes than substance. The discussion of economic impact is vague and speculative, and there is no evidence of industrial involvement that is specific to the instrument requested.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 017PHY-05

INSTITUTION: University of New Orleans

TITLE OF PROPOSAL: Upgrading Pulsed Laser Deposition System for Materials Physics  
Research at UNO

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes     X     No                       
 A.2     5     (of 5 points)  
 A.3     5     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     6     (of 6 points)  
 C.2     1     (of 1 point)  
 C.3     2     (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
 E.2a     8     (For S/E)  
 or                      (of 10 points)  
 E.2b                      (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1     19     (of 20 points)  
 B.2     19     (of 20 points)  
 B.3     4     (of 5 points)  
 B.4     2     (of 2 points)  
 B.5     5     (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1     11     (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     2     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes     X     No                     

H. Total Score: 91 (of 100 points)

(Note: Proposals with a total score below 70 will not be recommended for funding.)

SPECIFIC BUDGETARY Requested Amount:     \$108,000      
 RECOMMENDATIONS: Recommended Amount:     \$108,000    

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel recommends fully funding this proposal for the purchase of the excimer laser and associated components. The pulsed laser deposition system is clearly vital for the fabrication of research samples for a variety of projects, and the existing laser has reached the end of its useful life. However, the panel is surprised that the PIs do not have more external (especially federal and industrial) current or pending funding, given the quality and quantity of their work. The proposal would have been strengthened if the institution had indicated its support for this effort by providing cash matching funds.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

**PROPOSAL NUMBER:** 018PHY-05

**INSTITUTION:** University of New Orleans

**TITLE OF PROPOSAL:** Acquisition of a Laser Ablation System for Wafer Size  
Nanostructure Growth Towards Nanodevice Fabrication

**A. The Current Situation**

(Total of 10 Points)

A.1 Yes   X   No \_\_\_\_\_  
 A.2     3     (of 5 points)  
 A.3     3     (of 5 points)

**C. Equipment**

(Total of 10 Points)

C.1     4     (of 6 points)  
 C.2     1     (of 1 point)  
 C.3     3     (of 3 points)

**E. Economic and/or Cultural  
Development and Impact**

(Total of 12 Points)

E.1     2     (of 2 points)  
 E.2a     5     (For S/E)  
 or \_\_\_\_\_ (of 10 points)  
 E.2b \_\_\_\_\_ (For NS/NE)

**B. The Enhancement Plan**

(Total of 52 Points)

B.1    13    (of 20 points)  
 B.2    12    (of 20 points)  
 B.3     2     (of 5 points)  
 B.4     1     (of 2 points)  
 B.5     3     (of 5 points)

**D. Faculty and Staff Expertise**

(Total of 12 Points)

D.1     9     (of 12 points)

**F. Additional Funding Sources**

(Total of 4 Points)

F.1     2     (of 4 points)

**G. Previous Support Fund Awards**

(No Points Assigned)

G.1 Yes   X   No \_\_\_\_\_

**H. Total Score:** 63 (of 100 points)

**(Note: Proposals with a total score below 70 will not be recommended for funding.)**

**SPECIFIC BUDGETARY**      **Requested Amount:**    \$138,800     
**RECOMMENDATIONS:**      **Recommended Amount:**           \$0          

COMMENTS: (Discuss proposal strengths and weaknesses, particularly in those sections where significant point deductions have been made. Include suggestions for resubmission. For proposals recommended for funding, include all applicable stipulations in budgets and scopes of work.)

The panel does not recommend funding this proposal for a wafer-scale laser ablation system. The panel feels that the research project is not yet mature; evidence of more extensive success at the device level is needed before the case for scaling up to the wafer level can be convincing. The panel finds it surprising that the PIs have submitted a proposal to NSF that is predicated on receiving funding from this program, and that the equipment is needed in order to fulfill a DARPA grant. The descriptions of the plans for curricular development and the impact on the quality of students are very vague, as are the plans for the use of the equipment by collaborators or in outreach programs. No indication of industrial interaction is given, which is, again, very surprising considering that the project proposes a scale-up to industrial levels of production. The proposal is also poorly written.

## **APPENDIX A**

### **SUMMARY OF PROPOSALS SUBMITTED**

**Proposals Submitted to the  
Traditional Enhancement Program - Physics/Astronomy  
for the FY 2004-2005 Review Cycle**

| <b>Prop#</b>                     | <b>Title</b>  | <b>Institution/Department</b>                       | <b>Principal Investigator(s)</b>   | <b>Duration<br/>(Years)</b> | <b>BoRSF<br/>Money Requested</b> |
|----------------------------------|---|---|--|-----------------------------|----------------------------------|
| <b>001PHY-05</b>                 | Enhancement of Teaching and Research Laboratories in the Physics Department | Dillard University (Physics and Pre - Engineering); | Abdalla Darwish; Allan Burkett; Kerwin Foster; Reginald Stanton; Roberto B. Salgado; | <b>1</b>                    | <b>\$ 95,637</b>                 |
| <b>E</b>                         |   |   |  | <b>Total</b>                | <b>\$ 95,637</b>                 |
| Proposal is a <b>New Request</b> |   |   |  |                             |                                  |
| <b>002PHY-05</b>                 | Enhancement of Computational Fluid Dynamics Instruction and Research        | Dillard University (Computer Science);              | Zujia Xu; Azubike Okpalaeze; Gloria C. Love; Hong Dai;                               | <b>1</b>                    | <b>\$ 74,796</b>                 |
| <b>E</b>                         |   |   |  | <b>Total</b>                | <b>\$ 74,796</b>                 |
| Proposal is a <b>New Request</b> |   |   |  |                             |                                  |

E=Primarily an Equipment Request  
N=Not Primarily an Equipment Request

| <b>Prop#</b>                     | <b>Title</b>  | <b>Institution/Department</b>   | <b>Principal Investigator(s)</b>  | <b>Duration (Years)</b> | <b>BoRSF Money Requested</b>          |
|----------------------------------|---|---|---|-------------------------|---------------------------------------|
| <b>003PHY-05</b>                 | A High Altitude Student Platform for Enhancing Student Research Training                          | Louisiana State University And A&M College - Baton Rouge (Physics and Astronomy); | T. Gregory Guzik; John P. Wefel; Roger R. McNeil;   | <b>1</b><br><b>2</b>    | <b>\$ 125,401</b><br><b>\$ 23,395</b> |
| <b>E</b>                         |   |   |   | <b>Total</b>            | <b>\$ 148,796</b>                     |
| Proposal is a <b>New Request</b> |   |   |   |                         |                                       |
| <b>004PHY-05</b>                 | High-resolution Soft X-ray Photoemission Electron Microscope for Nano- and Bio-materials Research | Louisiana State University And A&M College - Baton Rouge (CAMD);                  | Orhan Kizilkaya; Eizi Morikawa; Josef Hormes; Mark D. Pease; Phillip T. Sprunger; Richard L. Kurtz; | <b>1</b>                | <b>\$ 137,390</b>                     |
| <b>E</b>                         |   |   |   | <b>Total</b>            | <b>\$ 137,390</b>                     |
| Proposal is a <b>New Request</b> |   |   |   |                         |                                       |
| <b>005PHY-05</b>                 | Enhancement of Deployment Capabilities  | Louisiana State University And A&M College - Shreveport (Physics);                | Gary R. Boucher;  | <b>1</b>                | <b>\$ 8,616</b>                       |
| <b>E</b>                         |   |   |   | <b>Total</b>            | <b>\$ 8,616</b>                       |
| Proposal is a <b>New Request</b> |   |   |   |                         |                                       |

| <b>Prop#</b>                     | <b>Title</b>  | <b>Institution/Department</b>  | <b>Principal Investigator(s)</b>                             | <b>Duration (Years)</b> | <b>BoRSF Money Requested</b> |
|----------------------------------|---|--|--|-------------------------|------------------------------|
| <b>006PHY-05</b>                 | Listen Up! An Introduction to Radio Astronomy   | Louisiana State University And A&M College - Shreveport (Chemistry and Physics); | Laura A. Whitlock;   | <b>1</b>                | <b>\$ 30,707</b>             |
| <b>E</b>                         |   |  |  | <b>Total</b>            | <b>\$ 30,707</b>             |
| Proposal is a <b>New Request</b> |   |  |  |                         |                              |
| <b>007PHY-05</b>                 | Enhancing Nanotechnology Education with Hands-on Scanning Microscopy                                  | Louisiana Tech University (Physics); Grambling State University;                 | Tabbetha Dobbins; Hisham Hegab; James Palmer; Naidu Seetala; | <b>1</b>                | <b>\$ 62,500</b>             |
| <b>E</b>                         |   |  |  | <b>Total</b>            | <b>\$ 62,500</b>             |
| Proposal is a <b>New Request</b> |   |  |  |                         |                              |
| <b>008PHY-05</b>                 | Computation of Materials Properties for Electronics Technology and Engineering, Phase II (COMPETE-II) | Southern University and A&M College at Baton Rouge (Physics);                    | Diola Bagayoko; Guang -Lin Zhao; Saleem Hasan;               | <b>1</b>                | <b>\$ 135,000</b>            |
| <b>E</b>                         |   |  |  | <b>Total</b>            | <b>\$ 135,000</b>            |
| Proposal is a <b>New Request</b> |   |  |  |                         |                              |

| <b>Prop#</b>                     | <b>Title</b>   | <b>Institution/Department</b>  | <b>Principal Investigator(s)</b>                       | <b>Duration (Years)</b> | <b>BoRSF Money Requested</b> |
|----------------------------------|--|--|--|-------------------------|------------------------------|
| <b>009PHY-05</b>                 | An Experimental Setup for Research and Education in Nanoscale and Surface Chemistry                  | Tulane University (Physics); Xavier University;                      | Ulrike Diebold; Brent Koplitz; Heike Geisler;          | <b>1</b>                | <b>\$ 151,695</b>            |
| <b>E</b>                         |  |  |  | <b>Total</b>            | <b>\$ 151,695</b>            |
| Proposal is a <b>New Request</b> |  |  |  |                         |                              |
| <b>010PHY-05</b>                 | A Crystal Orientation System to Enhance Research and Education in Condensed Matter Physics at Tulane | Tulane University (Physics);   | Zhiqiang Mao; Ulrike Diebold;                          | <b>1</b>                | <b>\$ 121,033</b>            |
| <b>E</b>                         |  |  |  | <b>Total</b>            | <b>\$ 121,033</b>            |
| Proposal is a <b>New Request</b> |  |  |  |                         |                              |
| <b>011PHY-05</b>                 | Optical Profiling System for P-Beam Lithography Metrology  | University of Louisiana at Lafayette (Louisiana Accelerator Center); | Gary A. Glass; Alexander D. Dymnikov; Bibhudutta Rout; | <b>1</b>                | <b>\$ 96,100</b>             |
| <b>E</b>                         |  |  |  | <b>Total</b>            | <b>\$ 96,100</b>             |
| Proposal is a <b>New Request</b> |  |  |  |                         |                              |

| <b>Prop#</b>                     | <b>Title</b>   | <b>Institution/Department</b>  | <b>Principal Investigator(s)</b>  | <b>Duration (Years)</b> | <b>BoRSF Money Requested</b> |
|----------------------------------|--|--|---|-------------------------|------------------------------|
| <b>012PHY-05</b>                 | Texture Analyzer for the Enhancement of Pharmaceutical Physics Research and Education at ULM | University of Louisiana at Monroe (Basic Pharmaceutical Sciences);             | Sami Nazzal; Melgardt M. de Villiers; Michael D. DeGennaro; William M. Kolling; | <b>1</b>                | <b>\$ 30,194</b>             |
| <b>E</b>                         |  |  |   | <b>Total</b>            | <b>\$ 30,194</b>             |
| Proposal is a <b>New Request</b> |  |  |   |                         |                              |
| <b>013PHY-05</b>                 | Technology Enhancement for Heteroepitaxial Nanostructures Fabrication                        | University of New Orleans (Physics and Advanced Materials Research Institute); | Leszek Malkinski; Carl Ventrice, Jr.; Jinke Tang; Leonard Spinu;                | <b>1</b>                | <b>\$ 119,530</b>            |
| <b>E</b>                         |  |  |   | <b>Total</b>            | <b>\$ 119,530</b>            |
| Proposal is a <b>New Request</b> |  |  |   |                         |                              |
| <b>014PHY-05</b>                 | Structural Analysis Using the Atomic Pair Distribution Function                              | University of New Orleans (Mechanical Engineering);                            | Paul Schilling;   | <b>1</b>                | <b>\$ 92,300</b>             |
| <b>E</b>                         |  |  |   | <b>Total</b>            | <b>\$ 92,300</b>             |
| Proposal is a <b>New Request</b> |  |  |   |                         |                              |

| <b>Prop#</b>                     | <b>Title</b>  | <b>Institution/Department</b>  | <b>Principal Investigator(s)</b>   | <b>Duration (Years)</b> | <b>BoRSF Money Requested</b> |
|----------------------------------|---|--|--|-------------------------|------------------------------|
| <b>015PHY-05</b>                 | Acquisition of a SQUID Magnetometer for Novel Magnetic Materials Investigation                              | University of New Orleans (Physics and Advanced Materials Research Institute); | Leonard Spinu; Charles J. O'Connor; Jinke Tang; John B. Wiley; Leszek Malkinski;     | <b>1</b>                | <b>\$ 253,000</b>            |
| <b>E</b>                         |   |  |  | <b>Total</b>            | <b>\$ 253,000</b>            |
| Proposal is a <b>New Request</b> |   |  |  |                         |                              |
| <b>016PHY-05</b>                 | Acquisition of a Spectroscopic Ellipsometer for Research and Education in the Optics of Nanoscale Materials | University of New Orleans (Physics and Advanced Materials Research Institute); | Kevin L. Stokes; Carl Ventrice; Jinke Tang; Leonard Spinu; Leszek Malkinski;         | <b>1</b>                | <b>\$ 130,790</b>            |
| <b>E</b>                         |   |  |  | <b>Total</b>            | <b>\$ 130,790</b>            |
| Proposal is a <b>New Request</b> |   |  |  |                         |                              |
| <b>017PHY-05</b>                 | Upgrading Pulsed Laser Deposition System for Materials Physics Research at UNO                              | University of New Orleans (Physics);   | Jinke Tang; Carl A. Ventrice, Jr.; Kevin L. Stokes; Leonard Spinu; Leszek Malkinski; | <b>1</b>                | <b>\$ 108,000</b>            |
| <b>E</b>                         |   |  |  | <b>Total</b>            | <b>\$ 108,000</b>            |
| Proposal is a <b>New Request</b> |   |  |  |                         |                              |

| <b>Prop#</b>     | <b>Title</b>  | <b>Institution/Department</b>  | <b>Principal Investigator(s)</b>                                     | <b>Duration (Years)</b> | <b>BoRSF Money Requested</b> |
|------------------|---|--|--|-------------------------|------------------------------|
| <b>018PHY-05</b> | Acquisition of a Laser Ablation System for Wafer Size Nanostructure Growth Towards Nanodevice Fabrication | University of New Orleans (Physics and Advanced Materials Research Institute); | Weilie Zhou; Charles J. O'Connor; Kevin L. Stokes; Leszek Malkinski; | <b>1</b>                | <b>\$ 138,800</b>            |
| <b>E</b>         |   |  |  | <b>Total</b>            | <b>\$ 138,800</b>            |

Proposal is a **New Request**

| <b>Summary of Proposals Submitted to the Traditional Enhancement Program - Physics/Astronomy for the FY 2004-2005 Review Cycle</b> |   |                              |   |
|--|---|------------------------------|---|
| <b>Total Number of Proposals Submitted</b>   | <b>Total First-Year Funds Requested</b> | <b>Total Funds Requested</b> | <b>Total First-Year Funds Available</b> |
| <b>18</b>  | <b>\$ 1,911,489</b>                     | <b>\$ 1,934,884</b>          | <b>\$</b>                               |

## **APPENDIX B**

### **Proposal Evaluation Forms**

**Form 1: For Purchase of Instructional and Research Equipment**

**Form 2: For Other Than Equipment Purchases**

**BOARD OF REGENTS SUPPORT FUND  
ENHANCEMENT PROGRAM, FISCAL YEAR 2004-05**

**RATING FORM FOR TRADITIONAL AND UNDERGRADUATE ENHANCEMENT PROPOSALS  
PURCHASE OF INSTRUCTIONAL AND RESEARCH EQUIPMENT**

INSTRUCTIONS: The completed evaluation form should represent the consensus of the expert members of the review panel and, as such, must reflect the final decisions of that panel. Review this form and the program guidelines prior to reading the proposal. The higher the score, the more clearly the proposal satisfies the criterion under consideration. Guidelines should not be interpreted to exclude from eligibility departments and/or units engaged solely in instruction. Use the white space provided to explain the panel's ratings, especially on items given low scores. Attach additional pages, as necessary.

**A. THE CURRENT SITUATION--Total of 10 points**

- YES \_\_\_\_\_ NO \_\_\_\_\_
- \_\_\_\_\_ of 5 pts.      A.1      Has the applicant adequately described the institution and unit(s)/department(s) that will benefit from the proposed project, especially in terms of mission, faculty, students, and relevant institutional or departmental resources?
- \_\_\_\_\_ of 5 pts.      A.2      To what extent will the proposed project enhance the affected department(s) or unit(s)?
- \_\_\_\_\_ of 5 pts.      A.3      To what extent will the project complement and improve upon existing resources of the department(s) or unit(s)?

COMMENTS:

**B. THE ENHANCEMENT PLAN--Total of 52 points**

- \_\_\_\_\_ of 20 pts.      B.1      Are the objectives clearly stated? Can the objectives be completed within the timeframe detailed in the proposal?
- \_\_\_\_\_ of 20 pts.      B.2      To what extent will the proposed project catapult the department(s) or unit(s) into attaining a high level of regional, national, or international eminence--or maintaining a current high level of eminence--commensurate with degree offerings and/or functions?
- \_\_\_\_\_ of 5 pts.      B.3      To what extent will the proposed project have an impact on the variety and quality of curricular offerings and instructional methods within the affected department(s) or unit(s)? Appropriate to current thinking in the specific field(s) or discipline(s) of the proposed project, is reform of undergraduate education and/or teacher preparation encouraged?
- \_\_\_\_\_ of 2 pts.      B.4      To what extent will the proposed project enhance the ability of the department(s) or unit(s) to attract and/or retain students of high quality, particularly high quality students from Louisiana?
- \_\_\_\_\_ of 5 pts.      B.5      To what extent will the project contribute to improving the quality and effectiveness of faculty teaching and improve faculty pedagogical practices within the context of current thinking on reform of undergraduate education and teacher preparation, specific to field(s) or discipline(s) of the proposed project?

COMMENTS:

**C. EQUIPMENT--Total of 10 points**

- \_\_\_\_\_ of 6 pts.      C.1      To what extent has the proposal established a relationship between the enhancement plan and the items of equipment requested? Is the equipment well-justified? Will it significantly enhance the existing technological capability of the department? Does it reflect current and projected trends in technology?
- \_\_\_\_\_ of 1 pt.      C.2      Has there been a thorough survey of the current equipment inventory and does the proposal plan to make full use of it?
- \_\_\_\_\_ of 3 pts.      C.3      To what extent does the proposal present a reasonable plan to ensure a maximum usable lifetime for the equipment? Are housing and maintenance arrangements for equipment adequate?

COMMENTS:

**D. FACULTY AND STAFF EXPERTISE--Total of 12 points**

- \_\_\_\_\_ of 12 pts      D.1      Are the faculty and support personnel appropriately qualified to implement this project? If special training will be required for faculty and/or other personnel, has an appropriate plan been developed?

COMMENTS:

**E. ECONOMIC AND/OR CULTURAL DEVELOPMENT AND IMPACT--Total of 12 points**

- \_\_\_\_\_ of 2 pts.      E.1      To what extent will the project assist in establishing a new relationship, or strengthen an existing relationship, with one or more industrial/institutional sponsors (e.g., private business, trade organization, professional organization, non-profit or community organization, another university or consortium of universities, federal government agency)?

*NOTE TO REVIEWER: Depending on the discipline of the submitting department or unit, provide rating points for EITHER E.2a OR E.2b:*

- \_\_\_\_\_ of 10 pts.      E.2a      For science/engineering proposals only: To what extent will the project assist the submitting department(s)/unit(s) in promoting or enhancing the economic development of the State of Louisiana?
- E.2b      For non-science/non-engineering proposals only: To what extent will the project contribute to the academic and/or cultural resources of the State of Louisiana?

COMMENTS:

Proposal Number: \_\_\_\_\_

Principal Investigator: \_\_\_\_\_

**F. ADDITIONAL FUNDING SOURCES--Total of 4 points**

\_\_\_\_\_ of 4 pts.

F.1 To what extent will the costs associated with this project be shared through contributions from the institution(s) involved and/or external organizations?

COMMENTS:

**G. PREVIOUS SUPPORT FUND AWARDS--No points assigned**

YES \_\_\_ NO \_\_\_

G.1 If the Project Director or Co-Project Director has received previous Support Fund support, has it been adequately documented?

COMMENTS:

**H. TOTAL SCORE: (NOTE: Proposals with a total score below 70 will not be recommended for funding.)**

\_\_\_\_\_ of 100 points

**SPECIFIC BUDGETARY RECOMMENDATIONS**

Requested Amount \$ \_\_\_\_\_

Recommended Amount \$ \_\_\_\_\_

COMMENTS:

=====

I agree to maintain in confidence any information, documentation and material of any kind (hereinafter referred to as "Material") included in this proposal; I further agree not to disclose, divulge, publish, file patent application on, claim ownership of, exploit or make any other use whatsoever of said "Material" without the written permission of the principal investigator. To the best of my knowledge, no conflict of interest is created as a result of my reviewing this proposal.

Reviewer's Name and Institution: \_\_\_\_\_

Reviewer's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**BOARD OF REGENTS SUPPORT FUND  
ENHANCEMENT PROGRAM, FISCAL YEAR 2004-05**

**RATING FORM FOR TRADITIONAL AND UNDERGRADUATE ENHANCEMENT PROPOSALS  
REQUESTS OTHER THAN EQUIPMENT PURCHASES (e.g., Colloquia, Curricular Revisions, etc.)**

INSTRUCTIONS: The completed evaluation form should represent the consensus of the expert members of the review panel and, as such, must reflect the final decisions of that panel. Review this form and the program guidelines prior to reading the proposal. The higher the score, the more clearly the proposal satisfies the criterion under consideration. Guidelines should not be interpreted to exclude from eligibility departments and/or units engaged solely in instruction. Use the white space provided to explain the panel's ratings, especially on items given low scores. Attach additional pages, as necessary.

**A. THE CURRENT SITUATION--Total of 10 points**

- YES \_\_\_\_\_ NO \_\_\_\_\_
- \_\_\_\_\_ of 5 pts.      A.1      Has the applicant adequately described the institution and unit(s)/department(s) that will benefit from the proposed project, especially in terms of mission, faculty, students, and relevant institutional or departmental resources?
- \_\_\_\_\_ of 5 pts.      A.2      To what extent will the proposed project enhance the affected department(s) or unit(s)?
- \_\_\_\_\_ of 5 pts.      A.3      To what extent will the project complement and improve upon existing resources of the department(s) or unit(s)?

COMMENTS:

**B. THE ENHANCEMENT PLAN--Total of 62 points**

- \_\_\_\_\_ of 25 pts.      B.1      Are the objectives clearly stated? Can the objectives be completed within the timeframe detailed in the proposal?
- \_\_\_\_\_ of 25 pts.      B.2      To what extent will the proposed project catapult the department(s) or unit(s) into attaining a high level of regional, national, or international eminence--or maintaining a current high level of eminence--commensurate with degree offerings and/or functions?
- \_\_\_\_\_ of 5 pts.      B.3      To what extent will the proposed project have an impact on the variety and quality of curricular offerings and instructional methods within the affected department(s) or unit(s)? Appropriate to current thinking in the specific field(s) or discipline(s) of the proposed project, is reform of undergraduate education and/or teacher preparation encouraged?
- \_\_\_\_\_ of 2 pts.      B.4      To what extent will the proposed project enhance the ability of the department(s) or unit(s) to attract and/or retain students of high quality, particularly high quality students from Louisiana?
- \_\_\_\_\_ of 5 pts.      B.5      To what extent will the project contribute to improving the quality and effectiveness of faculty teaching and improve faculty pedagogical practices within the context of current thinking on reform of undergraduate education and teacher preparation, specific to field(s) or discipline(s) of the proposed project?

COMMENTS:

**C. FACULTY AND STAFF EXPERTISE--Total of 12 points**

\_\_\_\_\_ of 12 pts.

C.1 Are the faculty and support personnel appropriately qualified to implement this project? If special training will be required for faculty and/or other personnel, has an appropriate plan been developed?

COMMENTS:

**D. ECONOMIC AND/OR CULTURAL DEVELOPMENT AND IMPACT--Total of 12 points**

\_\_\_\_\_ of 2 pts.

D.1 To what extent will the project assist in establishing a new relationship, or strengthen an existing relationship, with one or more industrial/institutional sponsors (e.g., private business, trade organization, professional organization, non-profit or community organization, another university or consortium of universities, federal government agency)?

*NOTE TO REVIEWER: Depending on the discipline of the submitting department or unit, provide rating points for EITHER D.2a OR D.2b:*

\_\_\_\_\_ of 10 pts.

D.2a For science/engineering proposals only: To what extent will the project assist the submitting department(s)/unit(s) in promoting or enhancing the economic development of the State of Louisiana?

D.2b For non-science/non-engineering proposals only: To what extent will the project contribute to the academic and/or cultural resources of the State of Louisiana?

COMMENTS:

**E. ADDITIONAL FUNDING SOURCES--Total of 4 points**

\_\_\_\_\_ of 4 pts.

E.1 To what extent will the costs associated with this project be shared through contributions from the institution(s) involved and/or external organizations?

COMMENTS:

**F. PREVIOUS SUPPORT FUND AWARDS--No points assigned**

YES\_\_\_ NO\_\_\_\_\_

F.1 If the Project Director or Co-Project Director has received previous Support Fund support, has it been adequately documented?

COMMENTS:

Proposal Number: \_\_\_\_\_

Principal Investigator: \_\_\_\_\_

**G. TOTAL SCORE (NOTE: Proposals with a total score below 70 will not be recommended for funding.)**

\_\_\_\_\_ of 100 points

**SPECIFIC BUDGETARY RECOMMENDATIONS**

Requested Amount: \$ \_\_\_\_\_

Recommended Amount: \$ \_\_\_\_\_

COMMENTS:

=====

I agree to maintain in confidence any information, documentation and material of any kind (hereinafter referred to as "Material") included in this proposal; I further agree not to disclose, divulge, publish, file patent application on, claim ownership of, exploit or make any other use whatsoever of said "Material" without the written permission of the principal investigator. To the best of my knowledge, no conflict of interest is created as a result of my reviewing this proposal.

Reviewer's Name and Institution: \_\_\_\_\_

Reviewer's Signature: \_\_\_\_\_

Date: \_\_\_\_\_  
(Form 6.12, rev.2004)