

**REPORT TO THE LOUISIANA BOARD OF REGENTS  
REVIEW OF TRADITIONAL ENHANCEMENT PROPOSALS IN  
PHYSICS AND ASTRONOMY  
FY 2013-14**

**March 2014**

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**FY 2013-14 BOARD OF REGENTS SUPPORT FUND  
ENHANCEMENT COMPONENT**

**Physics/Astronomy**

**INTRODUCTION**

The Physics and Astronomy Review Panel consisted of Dr. Steven Carlip, Professor of Physics and Vice Chair of the Faculty of Letters and Science at the University of California at Davis (panel chair), and Dr. Donna Pierce, Associate Professor of Physics and Astronomy at Mississippi State University. The panel reviewed eleven (11) proposals submitted to the Louisiana Board of Regents requesting funds through the Traditional Enhancement component of the Board of Regents Support Fund.

For its evaluation, the panel received the proposals and appropriate rating forms; the FY 2013-14 Enhancement Program Request for Proposals (RFP), which included the specific criteria for evaluation; a summary table listing the proposals by title, institution, principal investigator, and funds requested; and a copy of the Physics and Astronomy review panel report from FY 2010-11. The panel members initially studied, evaluated, and ranked each proposal independently, using the criteria contained in the RFP. The members then discussed the proposals extensively via email and phone during February and March of 2014 and reached a consensus on their evaluations, rankings, and recommended funding levels.

The eleven (11) proposals submitted to the FY 2013-14 Enhancement Program requested a total of \$1,486,920 in first-year funding. The panel considered three (3) to be outstanding proposals and strongly recommended them for funding, two at reduced levels because of limited available resources. If additional money becomes available, the panel recommends that these top-ranked proposals be fully funded in the order of their ranking before any lower-ranked proposals receive funding. Five (5) proposals were considered strong and were recommended for funding (in a ranked order) if additional money becomes available. Three (3) proposals were not recommended for funding.

Table I lists, in order of rank, the three (3) proposals strongly recommended for funding by the panel for a total of \$395,888. Table II lists, in order of rank, the remaining proposals that are recommended for funding provided additional money is available after the proposals in Table I have been fully funded. Table III lists the proposals not recommended for funding. The individual evaluations for each proposal are included 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 included at the end of this report.

**TABLE I**  
**PROPOSALS HIGHLY RECOMMENDED FOR FUNDING**

Rank	Rating	Proposal Number	Institution	First Year Funds Requested	First Year Funds Recommended	Second Year Funds Requested	Second Year Funds Recommended
1	84	03PHY-14	LSU-BR	\$189,344	\$149,472	\$33,480	\$28,755
2	83	01PHY-14	LSU-BR	\$126,867	\$121,367		
3	82	09PHY-14	Tulane	\$237,686	\$125,049		
<b>TOTALS:</b>				<b>\$553,897</b>	<b>\$395,888</b>	<b>\$33,480</b>	<b>\$28,755</b>

**TABLE II**  
**PROPOSALS RECOMMENDED IF ADDITIONAL FUNDING BECOMES AVAILABLE**

Rank	Rating	Proposal Number	Institution	First Year Funds Requested	First Year Funds Recommended	Second Year Funds Requested	Second Year Funds Recommended
4	78	02PHY-14	LSU-BR	\$208,426	\$208,426		
5	77	08PHY-14	SU-BR	\$140,000	\$140,000		
6	76	11PHY-14	UNO	\$178,000	\$178,000		
7	74	05PHY-14	LSU-BR	\$77,904	\$77,904		
8	71	04PHY-14	LSU-BR	\$57,225	\$57,225		
<b>TOTALS:</b>				<b>\$661,555</b>	<b>\$661,555</b>	<b>\$0</b>	<b>\$0</b>

**TABLE III**  
**PROPOSALS NOT RECOMMENDED FOR FUNDING**

Rank	Rating	Proposal Number	Institution	First Year Funds Requested	First Year Funds Recommended	Second Year Funds Requested	Second Year Funds Recommended
9	68	10PHY-14	UNO	\$169,507	\$0		
10	67	07PHY-14	LaTech	\$54,513	\$0		
11	57	06PHY-14	LaTech	\$47,448	\$0		
<b>TOTALS:</b>				<b>\$271,468</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 01PHY-14

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

TITLE OF PROPOSAL: Terrestrial Gamma Flashes at Ground Level -- Search for  
Gamma Rays Produced by Lightning

PRINCIPAL INVESTIGATOR: Michael Cherry

## 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 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 56 Points)

B.1 9 (of 10 points)  
B.2 21 (of 21 points)  
B.3 2 (of 5 points)  
B.4 4 (of 5 points)  
B.5 4 (of 5 points)  
B.6 3 (of 5 points)  
B.7 3 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 11 (of 12 points)

## F. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes x No \_\_\_\_\_

G. Total Score: 83 (of 100 points)

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

SPECIFIC BUDGETARY RECOMMENDATIONS:	Requested Amount:	YEAR 1	YEAR 2
		<u>\$126,867</u>	<u>\$33,480</u>
	Recommended Amount:	<u>\$121,367</u>	<u>\$28,755</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.)

This well-formulated proposal would create a unique facility with a strong educational component. The PI and Co-PIs are highly qualified to undertake the project and mentor undergraduate students, and there is currently an established presence by LSU in Puerto Rico upon which to build the necessary facility for monitoring the lightning strikes remotely from Louisiana. The proposal has an exceptionally high level of research-instructional synergy in the project design. In addition to performing original scientific research, students would go through a rigorous design and project management experience. The program is expected to have a significant impact on minority STEM students. However, while the proposed research topic of gamma ray production by lightning has received a fair amount of recent interest, its longer-term significance – to either fundamental physics or practical application – is not so clear. It appears that the project is meant more to introduce students to research rather than to answer a compelling scientific question. Partial funding of \$121,367 is recommended in year one and \$28,755 in year two, with reductions to be made at the discretion of the PI. Full funding is recommended in both years if additional funds become available. The institutional match, consisting of travel, salary and indirect costs, may be reduced proportionately.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 02PHY-14

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

TITLE OF PROPOSAL: Aquisition of a Low Temperature Magnetic Force Microscope  
for Materials Science and Engineering Investigations

PRINCIPAL INVESTIGATOR: John DiTusa

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

## B. The Enhancement Plan

(Total of 56 Points)

B.1 8 (of 10 points)  
B.2 13 (of 21 points)  
B.3 5 (of 5 points)  
B.4 2 (of 5 points)  
B.5 3 (of 5 points)  
B.6 2 (of 5 points)  
B.7 3 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 12 (of 12 points)

## F. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes x No \_\_\_\_\_

G. Total Score: 

78
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 (of 100 points)

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

SPECIFIC BUDGETARY Requested Amount: \$208,426  
RECOMMENDATIONS: Recommended Amount: \$208,426

(if additional funds become available)

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.)

This proposal requests a magnetic force microscope for nanometer-scale measurements of magnetic properties, particularly of surfaces. The new equipment would be part of very good facility, and the PI and Co-PIs are highly experienced researchers who would be likely to obtain good scientific results. The equipment has potential to strengthen domestic and international partnerships, and would provide the Teach for America participants with special opportunities to be exposed to scientific research. However, the proposal fails to make a compelling scientific case. It provides insufficient context or explanation for the importance of the project or its position in a broader research program. The science goals are vague, without clear plans for a focused research effort. The plan for program evaluation is similarly vague. No discussion is provided of what aspects of publications and grants would be used to assess impact, and no specific measures of student quality are offered. Despite these weaknesses, full funding is recommended if additional funds become available.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 03PHY-14

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

TITLE OF PROPOSAL: A Photoelectron Analyzer System to Enhance Research  
and Education in Materials and Environmental Science  
Program at CAMD

PRINCIPAL INVESTIGATOR: Orhan Kizilkaya

## 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 56 Points)

B.1 9 (of 10 points)  
B.2 16 (of 21 points)  
B.3 4 (of 5 points)  
B.4 4 (of 5 points)  
B.5 4 (of 5 points)  
B.6 3 (of 5 points)  
B.7 3 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 11 (of 12 points)

## F. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes x No \_\_\_\_\_

G. Total Score: 

84
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 (of 100 points)

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

SPECIFIC BUDGETARY Requested Amount: \$189,344  
RECOMMENDATIONS: Recommended Amount: \$149,472

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.)

This is a very strong proposal for a significant upgrade to a statewide facility. The new photoelectron analyzer would provide substantial benefit to a wide range of research and would be used for a very broadly in materials research. The PI and Co-PIs have extensive experience with both the equipment and the science, and the proposed endstation would provide a uniqueness to LSU's research standing in the southeastern United States. The proposal is clearly written in general, although it contains a significant number of errors in spelling and grammar, and some figures are introduced before they are discussed in the text. The impact on curriculum is vague and poorly described. Due to limited resources, partial funding of \$149,472 is recommended, with reductions to be made at the discretion of the PI. The institutional match, consisting of salary and indirect costs, may be reduced proportionately. If additional funds become available, full funding is recommended.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 04PHY-14

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

TITLE OF PROPOSAL: Radiation Monitoring Equipment for a Synchrotron Ring

PRINCIPAL INVESTIGATOR: Marie-Lorraine Marceau-Day

## 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 3 (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 6 (For S/E)  
or \_\_\_\_\_ (of 10 points)  
E.2b \_\_\_\_\_ (For NS/NE)

## B. The Enhancement Plan

(Total of 56 Points)

B.1 8 (of 10 points)  
B.2 18 (of 21 points)  
B.3 3 (of 5 points)  
B.4 1 (of 5 points)  
B.5 2 (of 5 points)  
B.6 1 (of 5 points)  
B.7 3 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 11 (of 12 points)

## F. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes x No \_\_\_\_\_

G. Total Score: 

71
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 (of 100 points)

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

SPECIFIC BUDGETARY Requested Amount: \$57,225  
RECOMMENDATIONS: Recommended Amount: \$57,225  
(if additional funds become available)

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 overall goal of this proposal, better radiation monitoring at the LSU synchrotron, is a laudable one. The PI is a highly experienced radiation safety expert, and the proposed equipment would likely contribute to a safer operating environment at the CAMD facility. Unfortunately, the request fails to set priorities and is instead presented as "all or nothing." The plan for program evaluation contains no provisions for measuring the number of researchers (faculty, students, visitors, collaborators) impacted, the volume and citation rate of papers published, or the number and dollar amounts of grants brought in if the detection equipment were to be purchased. Likewise, there is no assessment of the number of students in radiation safety or medical physics courses who would use the facility. The proposal is poorly written overall. There is no need to fill paragraphs with bold-faced, underlined phrases. Given these weaknesses and limitations of available funding, full funding is recommended only if additional funds become available.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 05PHY-14

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

TITLE OF PROPOSAL: Modernization of Infrastructure for Experimental Research  
and Education

PRINCIPAL INVESTIGATOR: Phillip Sprunger

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

## B. The Enhancement Plan

(Total of 56 Points)

B.1 10 (of 10 points)  
B.2 18 (of 21 points)  
B.3 3 (of 5 points)  
B.4 2 (of 5 points)  
B.5 2 (of 5 points)  
B.6 1 (of 5 points)  
B.7 2 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 11 (of 12 points)

## F. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes x No \_\_\_\_\_

G. Total Score: 

74
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 (of 100 points)

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

SPECIFIC BUDGETARY Requested Amount: \$77,904  
RECOMMENDATIONS: Recommended Amount: \$77,904

(if additional funds become available)

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.)

This is a very general proposal for an upgrade of the LSU machine shop, including the acquisition of an updated CNC mill, a new lathe and some student machine shop equipment. The critical importance of the machine shop to LSU's physics and astronomy experimentalists is well demonstrated, and it is reasonably clear that the upgrade would make the University more competitive for federal and private funding. The PIs and machine shop staff are highly experienced experimentalists and machinists who would ensure the successful installation of the equipment. Both faculty and students would have opportunities to use the equipment for research. However, the equipment is general purpose. While a number of projects are listed which *could* benefit, there is no single situation in which the proposal presents an urgent, compelling need. A good deal of emphasis is placed on the benefits provided to researchers by the shop "as is"; such anecdotes do not reinforce the need for equipment upgrades. The proposal states in section 1.c that other departments have used the machine shop and could benefit from its upgrade, but no co-PIs from other departments (e.g., G. Waldrop, Biological Sciences, mentioned in vignette 9) appear in this proposal. Overall, while the proposal makes a good case, it lacks the urgency or focus of some of competing applications for the very limited available funds. Full funding is recommended if additional funds become available.



# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 06PHY-14

INSTITUTION: Louisiana Tech University

TITLE OF PROPOSAL: Nuclear Lab Equipment Enhancement at Louisiana Tech

PRINCIPAL INVESTIGATOR: Zeno Greenwood

## A. The Current Situation

(Total of 10 Points)

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

## C. Equipment

(Total of 10 Points)

C.1 5 (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 4 (For S/E)  
or \_\_\_\_\_ (of 10 points)  
E.2b \_\_\_\_\_ (For NS/NE)

## B. The Enhancement Plan

(Total of 56 Points)

B.1 3 (of 10 points)  
B.2 9 (of 21 points)  
B.3 1 (of 5 points)  
B.4 5 (of 5 points)  
B.5 1 (of 5 points)  
B.6 3 (of 5 points)  
B.7 3 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 10 (of 12 points)

## F. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes x No \_\_\_\_\_

G. Total Score: 57 (of 100 points)

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

SPECIFIC BUDGETARY Requested Amount: \$47,448  
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.)

This is a proposal for equipment that would facilitate the PI's role as the University's Nuclear Safety Officer (NSO), and could be used to train students in nuclear physics and radiation safety. Several courses for which the equipment would be used are described in detail. Overall, however, the proposal is poorly written, with vaguely described goals and no clear implications for research. The proposal states that the existing equipment is still functioning, and fails to make a compelling case for the urgency of equipment upgrades. A timeline with detailed project milestones is absent; only vague descriptors are provided. One of the stated goals is to "facilitate cutting edge nuclear training and experimentation" (page 2), but no particular experimentation beyond student labs is described. The proposal would have benefited from including other researchers who require the NSO's duties, with descriptions of how and why their research requires these services. Such a description would facilitate the assessment of how the equipment could impact research at Louisiana Tech. The proposal cites a memorandum of understanding (MOU) with the Willis Knighton Treatment Center, but gives no details; it is not even clear whether the MOU is currently in place or is still under discussion. While the impact on certain courses is made reasonably clear, a competitive proposal would have to go considerably farther in demonstrating a truly significant effect. Funding is not recommended.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 07PHY-14

INSTITUTION: Louisiana Tech University

TITLE OF PROPOSAL: Louisiana Tech Astronomy Program Enhancement Grant

PRINCIPAL INVESTIGATOR: John Shaw

## 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 5 (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 56 Points)

B.1 5 (of 10 points)  
B.2 17 (of 21 points)  
B.3 2 (of 5 points)  
B.4 3 (of 5 points)  
B.5 4 (of 5 points)  
B.6 2 (of 5 points)  
B.7 5 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 6 (of 12 points)

## F. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes x No           

G. Total Score: 

67
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 (of 100 points)

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

SPECIFIC BUDGETARY	Requested Amount:	<u>\$54,513</u>
RECOMMENDATIONS:	Recommended Amount:	<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.)

This proposal is for an astronomical observation upgrade, including an electronic link from the observatory to campus, two new telescopes and a variety of related equipment. The project would allow more students easier access to research-grade facilities for research and education, and would encourage undergraduates to obtain scientific results that could be published and/or presented at scientific conferences. The PI and Co-PIs have the appropriate background and experience to undertake the project and mentor students. However, the multi-component proposal offers no clear prioritization. Its focus is almost exclusively on teaching rather than research, which limits its role in achieving recognized eminence. It contains few specifics as to what science would be pursued with the equipment and what lessons would be taught. Without such information it is difficult to determine the suitability of the equipment or the appropriateness of the project timeline. The proposal would benefit from having a light pollution map of the area included, showing the site conditions for where the Schmidt-Cassegrains would be mounted. The performance measures would be strengthened by giving students a pre-course evaluation to compare to the planned post-course evaluation. The abstract describes a goal of putting certain classes online, but there is very little discussion of this complicated maneuver in the proposal, and no evidence that the applicants have looked carefully at the literature on advantages, disadvantages, and methods for such an action. Funding is not recommended. The applicants may wish to consider submitting a proposal to the Fund for Astrophysical Research, Inc., a private foundation grants program that funds equipment for astronomical research which could be a valuable resource for obtaining SBIG instrumentation or telescope software.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 08PHY-14

INSTITUTION: Southern University and A&M College-Baton Rouge

TITLE OF PROPOSAL: Enhancement of Undergraduate Education in Astronomy and  
Earth Science at Southern University: A Multi-Use  
Planetarium Facility

PRINCIPAL INVESTIGATOR: John Stacy

## 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 3 (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 7 (For S/E)  
or (of 10 points)  
E.2b \_\_\_\_\_ (For NS/NE)

## B. The Enhancement Plan

(Total of 56 Points)

B.1 10 (of 10 points)  
B.2 18 (of 21 points)  
B.3 1 (of 5 points)  
B.4 5 (of 5 points)  
B.5 3 (of 5 points)  
B.6 5 (of 5 points)  
B.7 2 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 12 (of 12 points)

## F. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes x No \_\_\_\_\_

G. Total Score: 77 (of 100 points)

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

SPECIFIC BUDGETARY Requested Amount: \$140,000  
RECOMMENDATIONS: Recommended Amount: \$140,000

(If additional funds become available)

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.)

This is a proposal to acquire a digital planetarium system as an element of a continuing upgrade in the astronomy curriculum. The PI has the appropriate background and experience and an impressive record in related instructional projects. The planetarium system would be used by many student organizations. The PI plans to train docents to help with operations and gain instructional experience. The proposed projector is suited to the size of the dome currently in place. However, the argument for the new projector is not strong. The shortcomings of current facilities and partnerships are not clearly established. The plans to alter the current seating arrangements are not sufficiently justified. The typical enrollments of classes that would use the facilities are not provided. The enhancement to presentations is not fully articulated, given that many of the proposed subject areas for demonstration such as Kepler's laws, waves, radiation, and optics can be covered effectively by other means. The proposal would benefit from having a Co-PI who conducts science education research or is experienced in science education assessment and evaluation practices. Such an individual could develop attitudinal and conceptual assessments to better determine the impact of the planetarium on student learning. Full funding is recommended only if additional funds become available.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 09PHY-14

INSTITUTION: Tulane University

TITLE OF PROPOSAL: A Material Synthesis and Characterization System to  
Enhance Research and Education in Material Science and  
Engineering at Tulane

PRINCIPAL INVESTIGATOR: Zhiqiang Mao

## 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 56 Points)

B.1 6 (of 10 points)  
B.2 16 (of 21 points)  
B.3 5 (of 5 points)  
B.4 5 (of 5 points)  
B.5 3 (of 5 points)  
B.6 2 (of 5 points)  
B.7 4 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 10 (of 12 points)

## F. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes x No                     

G. Total Score: 

82
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 (of 100 points)

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

SPECIFIC BUDGETARY	Requested Amount:	<u>\$237,686</u>
RECOMMENDATIONS:	Recommended Amount:	<u>\$125,049</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.)

This is an ambitious proposal to acquire equipment that will extend the work of an already strong materials science group into the new research area of two-dimensional semiconductors in transition metal chalcogenides. The potential impact of the research is high. The PI is a leading researcher in materials science, and the Co-PIs are promising junior faculty who already have a great deal of experience in areas related to the proposed project. The proposed equipment would benefit student instruction in several advanced courses. The proposal is somewhat weak on measurable objectives, however. There is no project timeline with estimates for meeting major milestones, nor is there an adequate discussion of which team members will be responsible for securing the equipment and getting it installed and tested. Furthermore, no level of effort is indicated on any of the team members' Current and Pending Support forms to enable the panel to discern how much is involved. The discussion of faculty development lacked details on teaching impact. The argument that the optical microscope is needed now is not fully persuasive, but overall this is a strong proposal. Due to fiscal restraints, partial funding of \$125,049 is recommended, with reductions to be made at the discretion of the PI. In the event that additional money becomes available, full funding is recommended.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 10PHY-14

INSTITUTION: University of New Orleans

TITLE OF PROPOSAL: Acquisition of NanoMOKE for Enhancement of Magnetic Nanostructures Characterization

PRINCIPAL INVESTIGATOR: Leszek Malkinski

## A. The Current Situation

(Total of 10 Points)

A.1 Yes x No             
A.2 3 (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 1 (of 2 points)  
E.2a 7 (For S/E)  
or (of 10 points)  
E.2b            (For NS/NE)

## B. The Enhancement Plan

(Total of 56 Points)

B.1 7 (of 10 points)  
B.2 13 (of 21 points)  
B.3 4 (of 5 points)  
B.4 1 (of 5 points)  
B.5 3 (of 5 points)  
B.6 1 (of 5 points)  
B.7 3 (of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1 11 (of 12 points)

## F. Previous Support Fund Awards

(No Points Assigned)

G.1 Yes x No           

G. Total Score: 

68
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 (of 100 points)

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

SPECIFIC BUDGETARY	Requested Amount:	<u>\$169,507</u>
RECOMMENDATIONS:	Recommended Amount:	<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.)

This is a proposal to acquire a major piece of equipment to measure and characterize magnetic nanostructure with the magneto-optical Kerr effect, especially on surfaces. The PI and Co-PIs are highly experienced materials science researchers and are likely to obtain good scientific results from the NanoMOKE3. The plan to use the equipment in the advanced modern physics lab would provide students a beneficial lab experience beyond performing the standard historical labs. However, while this is potentially a very interesting research area, the proposal fails to provide a context or a set of clear, particular goals. To be more competitive the proposal would have to make a much stronger case as to why this research is especially important, either for fundamental theory or for practical applications. The plan for assessing impact lacks details, and includes no method for measuring the impact on students. The project timeline is described in vague terms. The proposal would have benefited from a table with a robust timeline. The section on faculty development does not discuss "improving the quality and effectiveness of faculty teaching" as the RFP requires. The provisions for maintenance are weak. While the equipment may be "designed to require minimum maintenance," potential problems must be considered. The discussion of industrial and institutional partnerships contains no specific details on how the NanoMOKE3 will benefit them. The proposal also contains a number of grammatical errors. Funding is not recommended.

# RATING FORM FOR ENHANCEMENT INSTRUCTIONAL AND RESEARCH EQUIPMENT REQUESTS

PROPOSAL NUMBER: 11PHY-14

INSTITUTION: University of New Orleans

TITLE OF PROPOSAL: Acquisition of a Vector Network Analyzer for Novel Materials Investigations

PRINCIPAL INVESTIGATOR: Leonard Spinu

## A. The Current Situation

(Total of 10 Points)

A.1	Yes	<u>x</u>	No	<u>          </u>
A.2		<u>4</u>	(of 5 points)	
A.3		<u>4</u>	(of 5 points)	

## C. Equipment

(Total of 10 Points)

C.1	<u>6</u>	(of 6 points)
C.2	<u>1</u>	(of 1 point)
C.3	<u>3</u>	(of 3 points)

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

(Total of 12 Points)

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

## B. The Enhancement Plan

(Total of 56 Points)

B.1	<u>7</u>	(of 10 points)
B.2	<u>17</u>	(of 21 points)
B.3	<u>4</u>	(of 5 points)
B.4	<u>3</u>	(of 5 points)
B.5	<u>2</u>	(of 5 points)
B.6	<u>1</u>	(of 5 points)
B.7	<u>3</u>	(of 5 points)

## D. Faculty and Staff Expertise

(Total of 12 Points)

D.1	<u>11</u>	(of 12 points)
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## F. Previous Support Fund Awards

(No Points Assigned)

G.1	Yes	<u>x</u>	No	<u>          </u>
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G. Total Score: 

76
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 (of 100 points)

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

SPECIFIC BUDGETARY	Requested Amount:	<u>\$178,000</u>
RECOMMENDATIONS:	Recommended Amount:	<u>\$178,000</u>

(if additional funds become available)

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.)

This is a proposal to acquire a new Vector Network Analyzer (VNA) to replace an existing system that is no longer supported by the manufacturer. The PI and Co-PIs are highly experienced materials science researchers with the appropriate experience to ensure the successful installation and use of the VNA. In addition to the proposed research, the new equipment could be used for several advanced laboratory courses which have been specifically identified. However, while the proposal lists a fairly wide variety of experiments for which the new instrument would be useful, for the most part it does not make a compelling case that the instrument is necessary. An argument that the equipment is truly necessary for one or two important projects would be more convincing than contending that it will possibly be helpful for a wide range of projects. The timetable of objectives is vague on its stated timescales, and there is no discussion of contingency plans in the event the delivery of equipment is delayed. The proposal lacks clear, measurable objectives. The faculty development section does not discuss improving the quality and effectiveness of faculty teaching. Full funding is recommended only if additional funds become available.

# **Appendix A**

## **Summary List of Proposals**

Proposals Submitted to the Traditional Enhancement Program - Physics and Astronomy  
for the FY 2013-14 Review Cycle

Proposal Number	PI Name	Institution	Duration	Equipment/ Non Equipment	New/ Continuation	Project Title	Amount Requested		
							Year 1	Year 2	Total
001PHY-14	Prof. Michael Cherry	Louisiana State University and A & M College - Baton Rouge	2 Years	E	New Request	Terrestrial Gamma Flashes at Ground Level -- Search for Gamma Rays Produced by Lightning	\$126,867.00	\$33,480.00	\$160,347.00
002PHY-14	Prof. John DiTusa	Louisiana State University and A & M College - Baton Rouge	1 Year	E	New Request	Aquisition of a Low Temperature Magnetic Force Microscope for Materials Science and Engineering Investigations	\$208,426.00	\$0.00	\$208,426.00
003PHY-14	Dr. Orhan Kizilkaya	Louisiana State University and A & M College - Baton Rouge	1 Year	E	New Request	A photoelectron analyzer system to enhance research and education in materials and environmental science program at CAMD	\$189,344.00	\$0.00	\$189,344.00
004PHY-14	Dr. Marie-Lorraine Marceau-Day	Louisiana State University and A & M College - Baton Rouge	1 Year	E	New Request	Radiation Monitoring Equipment for a Synchrotron Ring	\$57,225.00	\$0.00	\$57,225.00
005PHY-14	Prof. Phillip Sprunger	Louisiana State University and A & M College - Baton Rouge	1 Year	E	New Request	Modernization of Infrastructure for Experimental Research and Education	\$77,904.00	\$0.00	\$77,904.00
006PHY-14	Prof. Zeno/ D. Greenwood	Louisiana Tech University	1 Year	E	New Request	Nuclear Lab Equipment Enhancement at Louisiana Tech	\$47,448.00	\$0.00	\$47,448.00
007PHY-14	Dr. John Shaw	Louisiana Tech University	1 Year	E	New Request	Louisiana Tech Astronomy Program Enhancement Grant	\$54,513.00	\$0.00	\$54,513.00
008PHY-14	Dr. John Stacy	Southern University and A&M College - Baton Rouge	1 Year	E	New Request	Enhancement of Undergraduate Education in Astronomy and Earth Science at Southern University: A Multi-Use Planetarium Facility	\$140,000.00	\$0.00	\$140,000.00



Proposals Submitted to the Traditional Enhancement Program - Physics and Astronomy  
for the FY 2013-14 Review Cycle

Proposal Number	PI Name	Institution	Duration	Equipment/ Non Equipment	New/ Continuation	Project Title	Amount Requested		
							Year 1	Year 2	Total
009PHY-14	Prof. Zhiqiang Mao	Tulane University	1 Year	E	New Request	A material synthesis and characterization system to enhance research and education in material science and engineering at Tulane	\$237,686.00	\$0.00	\$237,686.00
010PHY-14	Prof. Leszek Malkinski	University of New Orleans	1 Year	E	New Request	Acquisition of NanoMOKE for Enhancement of Magnetic Nanostructures Characterization	\$169,507.00	\$0.00	\$169,507.00
011PHY-14	Prof. Leonard Spinu	University of New Orleans	1 Year	E	New Request	Acquisition of a Vector Network Analyzer for Novel Materials Investigations	\$178,000.00	\$0.00	\$178,000.00

**\*The RFP restricts second year funding requests to no more than \$50,000.**

Total Number of Proposals submitted	11
Total Money Requested for First Year	\$1,486,920.00
Total Money Requested for Second Year	\$33,480.00
Total Money Requested	\$1,520,400.00

# **Appendix B**

## **Rating Forms**

## BOARD OF REGENTS SUPPORT FUND ENHANCEMENT PROGRAM

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.

**A. THE CURRENT SITUATION—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 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)/unit(s) and/or curricula?
- \_\_\_\_\_ of 5 pts.      A.3      To what extent will the project complement and improve upon existing resources of the department(s) or unit(s)?

**B. THE ENHANCEMENT PLAN—56 points**

- \_\_\_\_\_ of 10 pts.      B.1      Are the goals and objectives clearly stated? Are they realistic? Are the objectives measurable? Can the objectives be completed within the timeframe detailed in the proposal?
- \_\_\_\_\_ of 21 pts.      B.2      Does the work plan sufficiently describe the activities that will be undertaken to achieve the goals and objectives of the proposal with responsible individuals listed for each activity and a schedule of// activities with benchmarks to be accomplished?
- \_\_\_\_\_ of 5 pts.      B.3      To what extent will the proposed project propel the department(s)/ 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.4      To what extent will the proposed project have an impact on the variety and/or quality of curricular offerings and instructional methods within the affected department(s) or unit(s)?
- \_\_\_\_\_ of 5 pts.      B.5      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.6      To what extent will the project contribute to improving the quality and effectiveness of faculty teaching and improve faculty pedagogy?
- \_\_\_\_\_ of 5 pts.      B.7      To what extent does the proposal indicate how the PIs will assess/evaluate the degree to which the project has achieved its goals?

**C. EQUIPMENT—10 points**

- \_\_\_\_\_ of 6 pts.      C.1      To what extent has the proposal established a relationship between the enhancement plan activities and the type of equipment requested? Is the equipment well-justified? Will it significantly enhance the existing technological capability of the department(s)/units(s)? Does it reflect current and projected trends in technology?
- \_\_\_\_\_ of 1 pt.      C.2      Is there a thorough survey of the current equipment inventory and does the proposal plan to make full use of the equipment?
- \_\_\_\_\_ 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?

**D. FACULTY AND STAFF EXPERTISE—12 points**

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

**E. ECONOMIC AND/OR CULTURAL DEVELOPMENT AND IMPACT—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 college or university or consortium of colleges and universities, federal government agency)?

\_\_\_\_\_ of 10 pts.      E.2      To what extent will the project assist the submitting department(s)/unit(s) in promoting or enhancing economic, cultural and/or academic development and/or resources in Louisiana?

**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?

**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 \$\_\_\_\_\_

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

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.

**A. THE CURRENT SITUATION—10 points**

- YES \_\_\_\_\_ NO \_\_\_\_\_
- \_\_\_\_\_ of 5 pts.      A.1      Has the applicant adequately described the institution and department(s)/unit(s) that will benefit from the 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)/unit(s) and/or curricula?
- \_\_\_\_\_ of 5 pts.      A.3      To what extent will the project complement and improve upon existing resources of the department(s)/unit(s)?

**B. THE ENHANCEMENT PLAN—66 points**

- \_\_\_\_\_ of 10 pts.      B.1      Are the goals and objectives clearly stated? Are they realistic? Are the objectives measurable? Can the objectives be completed within the timeframe detailed in the proposal?
- \_\_\_\_\_ of 20 pts.      B.2      Does the work plan sufficiently describe the activities that will be undertaken to achieve the goals and objectives of the proposal with responsible individuals listed for each activity and a schedule of activities with benchmarks to be accomplished?
- \_\_\_\_\_ of 8 pts.      B.3      To what extent will the proposed project propel the department(s)/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 8 pts.      B.4      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)?
- \_\_\_\_\_ of 8 pts.      B.5      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 8 pts.      B.6      To what extent will the project contribute to improving the quality and effectiveness of faculty teaching and improve faculty pedagogy?
- \_\_\_\_\_ of 4 pts.      B.7      To what extent does the proposal indicate how the PIs will assess/evaluate the degree to which the project has achieved its goals?

**C. FACULTY AND STAFF EXPERTISE—12 points**

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

**D. ECONOMIC AND/OR CULTURAL DEVELOPMENT AND IMPACT—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, or another college or university or consortium of colleges and universities, federal government agency)?
- \_\_\_\_\_ of 10 pts.      D.2      To what extent will the project assist the submitting department(s)/unit(s) in promoting or enhancing economic, cultural and/or academic development and/or resources in Louisiana?

**E. PREVIOUS SUPPORT FUND AWARDS—No points assigned**

YES\_\_\_ NO\_\_\_ E.1 If the Project Director or Co-Project Director has received previous Support Fund support, has it been adequately documented?

**F. 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 \$\_\_\_\_\_

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:\_\_\_\_\_