

REPORT OF THE FINAL PANEL

BOARD OF REGENTS SUPPORT FUND

RESEARCH COMPETITIVENESS SUBPROGRAM

FY 2008-09

BACKGROUND INFORMATION

One-hundred sixty-four research proposals requesting a total of \$8,982,693, in first-year funds were submitted for funding consideration in fiscal year (FY) 2008-09 to the Research Competitiveness Subprogram (RCS) of the Board of Regents Support Fund (BORSF) R & D Program. Six disciplines were eligible, including the biological sciences, chemistry, computer and information sciences, earth and environmental sciences, engineering "B" (i.e., industrial, materials, mechanical, and other engineering), and health & medical sciences.

THE REVIEW PROCESS

To conduct as thorough, objective, and expert a review as possible on such a large number of applications within the Board's monetary constraints and time frame, a three-phase review process was adopted.

Phase I: In Depth Mail Review

During mid-to-late November 2008, the Board of Regents' Sponsored Programs staff solicited the assistance of three hundred twenty-eight reviewers to accomplish Phase I of the review process. Each proposal was subjected to in-depth mail reviews for scientific and technical merit by two out-of-state professionals possessing expertise in the specific field of the proposal under review. Reviewers also evaluated the principal investigator's potential for achieving national competitiveness in the proposed research area, as well as the PI's and the institution's existing capabilities to implement the project. These evaluations were forwarded to each member of the appropriate subject area panel as soon as received by the Board's staff.

Phase II: In Depth Review by Subject Area Panel

In Phase II of the review process the one hundred sixty-four proposals were distributed among seven subject area panels, corresponding to the six general disciplines eligible for funding consideration in FY 2008-09. Two biological sciences panels were used because a large number of proposals were submitted in this subject area. One biological sciences subject area panel reviewed proposals related (but not limited) to human biology, cell/molecular biology, virology, and immunology; the other biological sciences proposals were related (but not limited) to ecology, pharmacognosy, microbiology, genetics and natural biology. Each panel was composed of two to four out-of-state experts with broad expertise in the disciplines represented by the proposals, as well as familiarity with the goals and tenets of an EPSCoR-type program.¹ Using the criteria set forth in the FY 2008-09 R & D Request for Proposals (RFP), panel members worked individually and then collaboratively by telephone and email to decide which proposals in their subject area met all four eligibility requirements (i.e., the applicant and the proposal fit the EPSCoR mold; the proposal contained a significant research component; the proposal had the potential to make fundamental [basic] research contributions; and the research topic fit one of the six eligible disciplines as defined in the RFP). In this second phase of the review process, each subject area

¹RCS is modeled after the National Science Foundation's Experimental Program to Stimulate Competitive Research (EPSCoR). NSF EPSCoR programs currently exist in 24 states, the Virgin Islands, and Puerto Rico.

panel member acted as “primary discussant” for an assigned portion of the proposals and completed an in depth, consensual critique form for each of his/her assigned proposals after discussing its relative merits and shortcomings with the other panel members. Through a telephone conference, the subject area panel members jointly ranked the proposals in the order in which they believed that the proposals should be funded. The panel carefully scrutinized the budgets of those proposals ranked high enough to merit serious consideration for funding and recommended modifications where appropriate.

Phase III: Final Panel Review and Interdigitation of Recommended Proposals

In Phase III of the review process a final panel (hereafter referred to as the “Panel”), composed of three senior out-of-state professionals whose expertise spans the eligible disciplines and who possess comprehensive experience with EPSCoR-type programs, convened during March 6 and 7, 2009, in Baton Rouge, Louisiana, in the offices of the Board of Regents to discuss and compare the various groups of top-ranked proposals and, ultimately, to interdigitate the rankings of the various proposals across the subject areas. None of these individuals was associated with any other phase of the review process.

The three principal criteria used by the Panel in making its funding recommendations were as follows: (1) the appropriateness of the applicant to this program; (2) the scientific and technical merit of the proposed research, utilizing national standards of excellence; and (3) the proposal’s identification of barriers to the principal investigator’s national competitiveness and presentation of a convincing plan for overcoming such barriers. Additional factors considered by the Panel included the current national pool of funds available for the type of research being proposed, the appropriateness of the budget request, and the relevance of the proposed research to the State of Louisiana. Eighty-eight proposals were discussed at length during this two-day meeting.

The Panel was informed that approximately \$980,000 would be available to fund the first year of work of the RCS projects. Utilizing the criteria described previously, the Panel recommended twenty-two proposals, totaling \$977,440 in first-year funds, which it strongly believed were worthy of support and placed them in the “Priority One” category in **Appendix A**. An additional fourteen proposals were also rated “Priority One,” in the event that additional money becomes available or that one or more of the higher-ranked applicants declines an award. The first fourteen proposals in Appendix A are ranked “1” (i.e., first). In the Panel’s opinion, these proposals are of nearly equal merit, and the order in which these proposals are listed is arbitrary. Proposals ranked fifteen through thirty-six are listed in descending order of merit for funding.

The budgets for each of the thirty-six proposals rated as “Priority One” were scrutinized closely and, in most cases, adjusted downward to reflect the minimum amount of funds necessary to accomplish the proposed research. The Panel emphasizes, however, that in no case was a budget reduced to the point where the scientist or engineer could not accomplish the research proposed in the application.

Several other highly meritorious proposals considered at the final panel meeting but, for a variety of reasons, not recommended for funding, are listed in **Appendix B**. (See Appendix B, which lists proposals placed in the Priority One category by the subject area panels that were not recommended by the Panel). The fact that a proposal considered by the final panel was not recommended for funding should not, in itself, be interpreted to mean that the application fell just below the cutoff for funding. Each applicant whose proposal is listed in Appendix B should closely review the reviewers’ comments (see Appendix F) before making the decision to resubmit a proposal to this program.

Appendix C lists those proposals that were ranked Priority Two by the subject area panels but not recommended for funding by the final panel. In general, the proposals listed in Appendix C were considered scientifically sound, but possessed one or more problems that precluded a recommendation for funding, such as poor or unconvincing identification of barriers to national competitiveness; a scope of work either too broad or poorly defined; and/or research proposed in an area where few federal dollars are currently expended.

The Panel observes that several other proposals, although not recommended for funding by the Panel, deserve notice. **Appendix D** lists proposals that were considered meritorious (Priority Three) by the subject area panels, but which were not rated highly enough to be included in the Priority Two list. Applicants whose projects are listed in Appendices C and D are encouraged to review the consultants' and reviewers' comments and, if appropriate, revise their applications and resubmit them when their research topics are again eligible.

Appendix E gives comments and funding stipulations for each of the thirty-six proposals highly recommended for funding.

Appendix F provides specific comments made by the consultants applicable to those proposals listed in Appendix B, as mentioned above.

Appendix G lists the out-of-state experts who served as full members of the final and subject area panels.

Appendix H summarizes all proposals submitted for funding consideration to the RCS and provides the following information for each proposal: proposal number, title, discipline, institution and department, principal and co-principal investigators, and BORSF funds requested.

FINAL PANEL COMMENTS AND RECOMMENDATIONS

The Research Competitiveness Subprogram of the Board of Regents Support Fund is designed to help those researchers in Louisiana who have strong potential to become nationally competitive for research funding from federal granting agencies. The Panel compliments the Board of Regents and the State of Louisiana on the establishment of such a quality program. It is the consensus of the Panel that this program has helped to establish a number of principal investigators who, in turn, have been able to support graduate students in their scientific and engineering studies through outside funding. It should be noted that through beneficial comments provided in each level of review, the process itself enhances the possibilities of success for proposals originating from researchers within the State of Louisiana who submit applications to a wide variety of funding sources. Moreover, the out-of-state scientists who reviewed and provided constructive criticism of this year's proposals are made aware of the scientific and engineering endeavors taking place in Louisiana and are impressed with the State's attempts to improve the research climate for its scientists and engineers through this program.

To the Applicants:

1. Barriers to Competitiveness. Despite the repeated emphasis placed on this criterion in the RFP, some applicants continue to ignore this program requirement. This year, as in past years, a number of applicants failed to present an argument indicating how a Board of Regents Support Fund award would remove the applicant's barriers to national competitiveness. In several proposals it appeared that the principal investigator was already nationally competitive and had significant external competitive funding. For other proposals, the barriers to national competitiveness were so great that funding the proposal would not overcome these barriers within the limits of the program (i.e., three years). The ratings of those proposals not in compliance with program guidelines were lowered accordingly.

2. Profile of Applicant. The Panel scrutinized the applicant's past funding levels and took into consideration the principal investigator's research productivity, particularly in the past three to five years. In some instances, proposals were submitted by nationally competitive faculty who had recently lost funding, but who gave no indication that they faced barriers to competitiveness that needed addressing. As stipulated in the RFP, junior researchers at the threshold of becoming competitive were given priority over senior researchers who are changing fields.

In some cases, proposals ranked highly by reviewers during Phases I and II contained no information about the applicant or lacked a history of funding. In such cases, reviewers cannot sufficiently evaluate the applicant's profile for eligibility. Therefore, the Panel could not recommend the proposal for funding.

3. Format, Syntax, and Appearance of Application. In several cases, research ideas suffered greatly because the proposals were not well written. From the finished products presented to the Panel (i.e., the proposals), it also appears that some investigators did not sufficiently appreciate the competitive nature of the RCS. Applicants should be made aware that no more than twenty-five per cent of the proposals submitted to this program will be funded with the money available, and that every year the number of excellent proposals far exceeds the funds available. Applications containing numerous spelling and typographical errors were viewed more critically than other applications, because an evident lack of care went into their preparation.
4. Requests for Equipment. As stated in the RFP, the R & D program is not an equipment grants program. Equipment may be requested only in the context of the particular research initiative proposed. It is the applicant's responsibility to justify the uniqueness of the equipment and/or software requested under the aegis of this program. With respect to computing equipment and software, it is the firm belief of the Panel that items such as personal computers, laptops, and standard word processing and data crunching software packages should be provided to faculty by their institutions. Board of Regents Support Fund money should be used only to support the acquisition of special peripherals and software that are specific to and justified by the proposed research.
5. Proposal Submission History. In several cases the Panel found it very helpful to have a detailed record tracking the submission of the proposal to other funding agencies. Also, as indicated in the RFP, if the project had been reviewed previously by another granting agency, it greatly enhanced the current proposal's chances of obtaining RCS funding if copies of these reviews were included, along with an explanation of any revisions that were made in the current application and a further explanation of how RCS support would help to overcome the problems identified by federal and/or other reviewers.
6. Funds Requested for Travel and Release Time. The Panel noted that requests for support for travel and faculty release time frequently were poorly justified and itemized. Such requests should be carefully justified and detailed in future proposals.
7. Requests for Post-doctoral Researchers and Graduate Research Assistants. The subject area panels noted that some proposals requested funds for post-doctoral researchers instead of graduate assistants, but did not provide an adequate explanation or justification of the need for the more expensive post-doctoral researchers. Because BORSF funds are quite limited, the Panel recommends that principal investigators request funding for the less costly graduate assistants, unless a compelling need for assistance from one or more post-doctoral researchers can be demonstrated.

8. General Comments.

- a) The Panel agreed that, at a minimum, a successful proposal must contain the following:
- (1) A precisely identified research problem or statement of a research hypothesis;
 - (2) A section describing the importance of solving the research problem;
 - (3) Evidence that the identified research problem is new and unresolved;
 - (4) A section describing the precise research methodology to be used;
 - (5) A section detailing expected results and future contributions;
 - (6) A discussion of the state and/or national implications of this research and identification of prospective future funding sources; and
 - (7) An assessment of the barriers that prevent the principal investigator from competing successfully for federal funding. This assessment should incorporate items 1-6 in a manner that will convince the reviewers that BORSF support of this investigator for up to three years will enable the PI to secure federal R & D dollars for the PI's research endeavors.
- b) Applicants whose proposals have been declined two or more times are encouraged to seek assistance in proposal/grant writing from a mentor or an established, nationally competitive investigator in the same field, perhaps at a nearby institution.
- c) Applicants whose proposals were submitted and declined for the first time this year should look to the reviewer comments for guidance in strengthening future proposals.
- d) Inexperienced principal investigators are helped by workshops on the preparation of research proposals. It would be beneficial if the institutions developed mentor programs, in which competitive scientists assisted these investigators in the preparation of good proposals. Mentors could also review the proposals prepared by junior investigators and suggest ways to strengthen these proposals. The Panel continues to be impressed by a marked improvement in the quality of proposals submitted by faculty from undergraduate teaching-oriented public and private institutions.
- e) A number of top-ranked proposals were submitted by scientists who are clearly already nationally competitive. The Panel believes that it is inappropriate to use limited Board resources to support such scientists, even if these PIs were marginally changing research directions. It should also be noted that some highly ranked proposals were submitted by scientists who had already received three years of BORSF R & D support. In those cases where three years of previous BORSF R & D support did not enable the PI to become nationally competitive, the Panel found it difficult to recommend or justify additional support when so many other equally worthy applicants had yet to receive BORSF R & D funds. In the Panel's view, three years of BORSF R & D support should enable a scientist to become nationally competitive, if the research area is capable of attracting support from national funding agencies. Therefore, all proposals recommended for funding by the Panel are believed to have strong potential for overcoming the barriers that have prevented the submitting scientists from achieving national competitiveness.

To the Board of Regents:

1. Limitations on Salary Requests and Requests for Post-Doctoral Researchers. The Panel strongly believes that the investigators funded through the RCS should be involved actively (i.e., play a “hands-on” role) in their research. For this reason, some requests for post-doctoral researchers were declined when budgets were reviewed. In most cases the Panel recommended Board funding for only one month’s summer salary for principal investigators. The Panel believes that the institutions should be strongly encouraged to provide release time to their investigators. The institutional provision of release time provides tangible evidence to reviewers and the Board that the institution is committed to the research endeavors of its investigators and frees up Board funds that would otherwise be committed to salary support, thereby helping to ensure that the maximum number of excellent projects will be funded.

2. Limitations on Overall Funding Requests. In no year of the RCS’s operation have the funds available sufficed to fund all proposals worthy of support. The Panel must cut proposal budgets significantly each year to ensure that the maximum possible number of worthy projects is funded. Therefore, the Panel strongly recommends that the Board maintain the existing overall cap on the amount of funds that may be requested (\$200,000 over a three-year period).

APPENDIX A

RCS PROPOSALS HIGHLY RECOMMENDED FOR FUNDING (PRIORITY ONE)

Rank	Proposal No.	Institution	Recommended BORSF 1st Year Funds	Recommended BORSF 2nd Year Funds	Recommended BORSF 3rd Year Funds
1	056A	LSUHSC-NO	\$22,695	\$22,695	\$22,695
1	004A	LSU-AG	\$38,000	\$34,000	\$30,500
1	109A	TULANE	\$64,192	\$37,826	\$37,986
1	034A	LSU-BR	\$41,500	\$41,500	\$41,500
1	121A	TULANE	\$70,119	\$58,711	\$61,250
1	045A	LSU-BR	\$39,656	\$39,656	\$39,111
1	059A	LSUHSC-NO	\$45,963	\$45,963	\$45,963
1	149A	ULM	\$34,000	\$34,000	\$34,000
1	021A	LSU-BR	\$52,100	\$50,100	-----
1	083A	LOYOLA	\$43,390	\$41,675	\$29,693
1	133A	ULL	\$37,410	\$37,410	\$37,410
1	014A	LSU-A	\$40,423	\$40,000	\$40,000
1	030A	LSU-BR	\$42,430	\$42,430	\$42,430
1	051A	LSUHSC-NO	\$49,257	\$49,257	\$49,257
15	137A	ULL	\$53,496	\$52,000	\$52,000
16	119A	TULANE	\$54,418	\$54,418	\$54,418
17	103A	SLU	\$22,290	\$20,790	\$18,850
18	025A	LSU-BR	\$43,066	\$41,607	\$34,570
19	136A	ULL	\$37,808	\$37,808	\$37,808
20	079A	LATECH	\$47,116	\$44,756	\$44,756

APPENDIX A (continued)
RCS PROPOSALS HIGHLY RECOMMENDED FOR FUNDING

21	036A	LSU-BR	\$47,244	\$47,244	\$47,244
22*	150A	UNO	\$50,867	\$50,867	\$50,867
23	118A	TULANE	\$49,429	\$49,429	\$49,429
24	153A	UNO	\$36,381	\$36,381	\$36,381
25	114A	TULANE	\$50,954	\$44,934	\$36,420
26	047A	LSU-BR	\$44,468	\$44,468	-----
27	093A	SLU	\$51,048	\$34,111	\$34,546
28	159A	UNO	\$48,750	\$48,750	\$48,750
29	052A	LSUHSC-NO	\$32,952	\$32,952	-----
30	068A	LATECH	\$62,807	\$49,000	\$49,000
31	071A	LATECH	\$47,891	\$42,844	\$42,844
32	035A	LSU-BR	\$47,650	\$47,650	\$47,650
33	027A	LSU-BR	\$42,169	\$37,959	\$35,043
34	016A	LSU-BR	\$33,166	\$32,366	\$32,366
35	143A	ULL	\$53,294	\$48,801	\$48,801
36	152A	UNO	<u>\$37,474</u>	<u>\$37,474</u>	<u>\$37,474</u>
TOTALS			\$ 1,615,873	\$1,511,832	\$1,351,012

***Note: The status of the availability of funds for those proposals below the line is uncertain at this time.**

APPENDIX B

**MERITORIOUS PROPOSALS RANKED PRIORITY ONE BY THE
SUBJECT AREA PANELS AND CONSIDERED BY THE FINAL PANEL
BUT NOT RECOMMENDED FOR FUNDING (3)**

008A 053A 054A

Note: These proposals are not listed in rank order of merit. The Panel's comments on these proposals are provided in Appendix F. Mail and subject area panel reviews for each proposal will also be provided to the applicants in July 2009.

APPENDIX C

**MERITORIOUS PROPOSALS RANKED PRIORITY TWO
BY THE SUBJECT AREA PANELS AND CONSIDERED BY THE FINAL PANEL
BUT NOT RECOMMENDED FOR FUNDING (49)**

001A	037A	063A	105A	135A
005A	041A	065A	112A	138A
007A	043A	067A	120A	139A
011A	044A	074A	122A	147A
017A	046A	077A	124A	148A
019A	049A	086A	128A	154A
029A	055A	091A	129A	155A
031A	057A	092A	130A	156A
032A	058A	099A	131A	157A
033A	061A	102A	134A	---

Note: These proposals are not listed in rank order of merit. The mail and subject area panel reviews for each proposal will be provided to the applicants in July 2009.

APPENDIX D

**PROPOSALS RANKED PRIORITY THREE OR DECLARED INELIGIBLE (*)
BY THE SUBJECT AREA PANELS AND NOT RECOMMENDED FOR FUNDING (76)**

002A	038A	076A	098A	126A	164A
003A	039A	078A	100A	127A	---
006A	040A	080A	101A	132A	---
009A	042A	081A	104A	140A	---
010A	048A	082A	106A	141A	---
012A	050A	084A	107A	142A	---
013A	060A	085A	108A	144A	---
015A	062A	087A	110A	145A	---
018A	064A	088A	111A	146A	---
020A	066A	089A	113A	151A	---
022A	069A	090A	115A	158A	---
023A	070A	094A	116A	160A	---
024A	072A	095A	117A	161A	---
026A	073A	096A	123A	162A	---
028A	075A	097A	125A	163A	---

Note: These proposals are not listed in rank order of merit. The mail and subject area panel reviews for each proposal will be provided to the applicants in July 2009.

APPENDIX E
COMMENTS AND FUNDING STIPULATIONS
ON PROPOSALS HIGHLY RECOMMENDED FOR FUNDING
(PRIORITY ONE)

General Comments and Stipulations

This section provides comments and stipulations set forth as conditions of funding for the thirty-six proposals highly recommended for awards by the Panel. The Panel would again like to emphasize that it considered the first fourteen proposals to be of relatively equal merit and, therefore, the order in which they have been listed is arbitrary. Proposals ranked fifteen through thirty-six are listed in descending order of merit for funding.

In some instances the Panel deleted funds for research associates and post-doctoral researchers. The Panel believes that the principal investigators themselves should conduct a significant portion of the proposed research and that BORSF funds should first support graduate students who will benefit from scientific and/or engineering training.

The Panel strongly recommends that **prior to funding each proposal recommended for an award, the Board of Regents ascertain whether the principal investigator has obtained significant research support from another external funding source, such as a major foundation or federal granting agency.** Several scientists have proposals pending before such agencies or foundations. The Final Panel believes that some of these scientists are so close to achieving national competitiveness for research funding that they are likely to receive these requested funds. **In cases where a principal investigator obtains a commitment of significant external funding prior to receipt of an RCS award, the RCS award should be vacated and the funds thereby released should be used to support other deserving projects in the RCS or other component(s) of the Board of Regents Support Fund. Any principal investigator who receives notice of external funding after an award is contracted will be expected to report the notice of external funds in accordance with Section X of the RCS grant contract.**

Although the Panel reduced the budgets of most projects recommended for funding, the Panel did not reduce any budget to such an extent that achievement of a project's goals or execution of its work plan would be impaired. Therefore, **no reductions in the scope of work plans of projects recommended for funding should be allowed.** If the work plan submitted for a project does not correspond in scope to that of the original proposal, the award should be vacated and funds thereby made available should be used to fund other worthy projects in the RCS or other R&D subprogram(s) of the Board of Regents Support Fund.

The types and amounts of institutional match pledged in a proposal played a significant role in determining whether that proposal was recommended for funding. **Therefore, unless specifically stated in the funding stipulations of a project recommended for funding, no reductions in the types or amount of institutional match pledged in the original proposal should be permitted.** If the types or amounts of institutional match for a project recommended for funding are reduced, and unless such reductions are specifically authorized by the funding stipulations for that grant, the award should be vacated and funds thereby made available should be used to fund other worthy projects in the RCS or other R&D subprogram(s) of the Board of Regents Support Fund.

Appendix E (continued):

PROPOSAL: 056A

RANK: 1

TITLE: Novel CD146-Downstream Target Genes for Therapy of Breast Cancer

INSTITUTION: Louisiana State University Health Sciences Center – New Orleans

PRINCIPAL INVESTIGATOR: Allal Ouhtit; Matthew HG Raj; Donald E. Mercante

Although CD146 receptor promotes melanoma and prostate cancer, strikingly, it acts as a suppressor of Breast Cancer (BC) progression. To characterize the unknown mechanisms of action of CD146 in BC, the PI developed a novel inducible system of CD146 expression, and demonstrated that induction of CD146 inhibits BC cell invasion *in vitro*. Using microarray, the PI has identified an inhibitor of metalloproteinases (IMP) as a novel potential target of CD146. The PI will test the hypothesis that CD146 is a suppressor of BC metastasis through up regulation of the anti-invasive gene IMP. The specific aims are: (1) validate IMP as a novel transcriptional target gene of CD146-inhibited BC cell invasion and identify the components of the CD146/IMP pathway; (2) validate *in vivo*, the functional relevance of CD146/IMP-signaling pathway in BC and; (3) identify CD146 ligand(s) and validate the function of ligand-CD146/IMP interactions in the process of BC cell invasion. This study will be the first to uncover a molecular link between CD146/IMP signaling and the inhibition of BC progression.

Dr. Ouhtit is well trained and well prepared to carry-out the proposed activities. The institutional and private sector support for the applicant seems very strong. However, the proposed budget can be significantly reduced to eliminate salary support for Drs. Raj and Mercante since both of these individuals are nationally competitive for funding and provide one month's salary for the PI. No individual salaries were provided, therefore it is recommended that the research funding be cut in half for a total salary budget of \$13,651, fringe benefits of \$4,505 and 25% overhead of \$4,539, for a total year one budget of \$22,695. Additionally, the request for supplies of \$1,822 in the second year was considered such a small amount that if needed it could be transferred from the salary category. The \$10,000 request for supplies in year three was not sufficiently documented and the research proposed was not sufficiently different than in year one and year two which would be cost sharing for the grant. For this reason a budget of \$22,695 is strongly recommended for year two and year three. If needed to cover any increased cost in supplies, a portion of the salary support should be transferred for this purpose.

Year 1: \$22,695

Year 2: \$22,695

Year 3: \$22,695

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 004A**RANK: 1****TITLE: Rust Fungi of Louisiana-Biosystematics and Diversity****INSTITUTION: Louisiana State University and A&M College - Agricultural Center****PRINCIPAL INVESTIGATOR: M. Catherine Aime**

Rust fungi are the largest group of plant pathogens, containing more than 7000 described species. All are obligate parasites on agricultural, forest and ornamental plants that results in billions of dollars of damage worldwide each year. Despite their global importance, complete life cycle data, including identity of alternate hosts, geographic distribution and genetics, are incomplete or lacking for most species. Rusts are increasingly common causal agents of exotic disease in the Gulf and in Louisiana. Yet, to date no comprehensive survey for rusts in Louisiana has been carried out. With funding of this proposal the PI will identify the resident rusts in Louisiana and use molecular-based methods to elucidate aspects of biology and to aid in developing a stable taxonomy for the rusts. It will establish a center of expertise in Louisiana on the study and systematics of these globally important pathogens.

Only a slight revision in the proposed budget is recommended that limits travel support to \$1,500, for a year-one budget of \$38,000. A budget of \$34,000 and \$30,500 is recommended for year two and year three, respectively.

Year 1: \$38,000**Year 2: \$34,000****Year 3: \$30,500**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 109A**RANK: 1****TITLE: Electrocatalytic Reduction of Carbon Dioxide to CO with Low-Valent Tungsten Complexes; Synthesis of an Analogue of the Mo-S-Cu CO Dehydrogenase Active Site****INSTITUTION: Tulane University****PRINCIPAL INVESTIGATOR: James P. Donahue**

The proposed research addresses the challenge of electrocatalytic reduction of CO₂ to CO, which would permit the recycling of waste CO₂ into CH₃OH or other valuable chemical feedstocks. In addition to its importance in the context of renewable energy and chemical raw material supply, this process would help address the environmental and economic problem posed by greenhouse gas accumulation. The primary goal of this research is disclosure of the feasibility of low-valent tungsten complexes, either chlorophosphine compounds or bis(dithiolene) complexes as electrocatalysts for CO₂-to-CO reduction. A related goal is the synthesis of an analogue of a bacterial CO dehydrogenase active site that has a biologically unique heterometal composition.

The PI has a pending NSF proposal entitled “CAREER: Studies of Carbon Dioxide Reduction, Metallo-dithiolene Chemistry, and Community Outreach to Build the Chemical Workforce” in the amount of \$582,652. Should the PI receive funding for the pending NSF proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

It is recommended that the project be funded at the level requested.

Year 1: \$64,192**Year 2: \$37,826****Year 3: \$37,986**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 034A**RANK: 1****TITLE: Volumetric Mapping and Parameterization for Digital Media, Shape Modeling, and Scientific Simulation****INSTITUTION: Louisiana State University and A & M College – Baton Rouge****PRINCIPAL INVESTIGATOR: Xin Li**

Volumetric data mapping is a fundamental problem in geometric modeling, and it serves as a key preprocessor for various applications in graphics, visualization, and vision. Surface (2D-manifold) mapping has been extensively studied and plays an important role in computer graphics. However, due to much more complicated topology structures and larger computational complexity of 3D-manifolds, study on volumetric mapping has just started. The PI proposes to study effective volumetric mapping computation, with an emphasis on mathematical rigor, accuracy, efficiency, controllability, and robustness. This developed innovative scientific computing framework will contribute to fundamental science research and bridge novel math and geometric modeling knowledge with broader computer science research in graphics, vision and visualization. This project will fund a solid platform for the PI's research career that will consequently lead to future competitive federal proposals for NSF and NIH.

A slight reduction in the proposed budget is recommended that limits travel support to \$1,500, for a year-one budget of \$41,500, with similar amounts for years two and year three.

Year 1: \$41,500**Year 2: \$41,500****Year 3: \$41,500**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 121A

RANK: 1

TITLE: Determining the Distribution of Ages in Sedimentary Organic Material Carried and Deposited by Mississippi River

INSTITUTION: Tulane University

PRINCIPAL INVESTIGATOR: Brad E. Rosenheim

The proposed research seeks the implementation and refinement of a novel analytical technique that aims at societally and scientifically important questions of carbon cycling on land, in rivers, and in the ocean. The technique involves the separation of carbon-constituents in sediments by diagenetic stability without discarding carbon and subsequent radiocarbon dating to constrain the proportions of plant derived, soil-derived, and rock-derived carbon. In addition to the technical aspects of this proposal the PI proposes the analysis of suspended sediment and marsh sediment samples collected during spring, 2008, high water event on the lower reaches of the Mississippi River and adjacent wetlands. As such, the project will elucidate local/regional processes, and it will make a new method available to other researchers that seek to research related questions on different river, lake, marine, and wetland systems.

The PI has a pending NSF proposal entitled “OCE 0902980 Assessing Wind-driven Circulation Variability in the Subtropical N. Atlantic Using an Array of Archived Radiocarbon Records” in the amount of \$255,073. Should the PI receive funding for the pending NSF proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

It is recommended that the project be funded at the level requested.

Year 1: \$70,119

Year 2: \$58,711

Year 3: \$61,250

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 045A

RANK: 1

TITLE: Nanoscale Plasmonic Devices for Enhancement of Nonlinear Optical Effects and Sensing

INSTITUTION: Louisiana State University – Baton Rouge

PRINCIPAL INVESTIGATOR: Georgios Veronis

The PI proposes to conduct a series of large-scale simulations to explore new plasmonic structures for on-chip light manipulation at the nanoscale. More specifically, the PI will explore nanoscale plasmonic devices for enhancement of nonlinear optical effects, and for ultra compact sensors, and develop compact models for efficient design and optimization of multi-component plasmonic circuits. The results of the project will lead to new opportunities for device applications and will represent important fundamental research contributions in integrated optics and optical information processing. The results generated from the proposed 3-year project will be used to compete for federal grants, which will allow the PI to continue pursuing competitive research in this area.

The PI has two NSF proposals pending entitled “CAREER: Plasmonic Devices for Manipulation Light at the Nanoscale” in the amount of \$400,000 and “Nanoscale Plasmonic Devices for On-chip Light Manipulation” in the amount of \$240,000. Should the PI receive funding for either of the pending NSF proposals the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

Only a modest reduction in the proposed budget is recommended that limits travel support to \$1,500, resulting in a year-one budget of \$39,656, with a similar budget for year two and a budget of \$39,111 in year three.

Year 1: \$39,656

Year 2: \$39,656

Year 3: \$39,111

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 059A

RANK: 1

TITLE: *Streptococcus mutans* Virulence Modulation

INSTITUTION: Louisiana State University Health Sciences Center – New Orleans

PRINCIPAL INVESTIGATOR: Zezhang T. Wen

Streptococcus mutans is the primary etiological agent of dental caries, a costly and ubiquitous health problem worldwide. Formation of tenacious biofilms on the tooth surface is a trait critical to pathogenicity of this bacterium. The PI previously showed that biofilm regulatory protein A (BrpA) plays a major role in regulation of biofilm formation in *S. mutans*. The BrpA-deficient mutants were able to bind to and form microcolonies on a surface, but failed to develop mature biofilms. In this study the PI will first purify BrpA protein from *S. mutans* using affinity chromatography approaches, which is perceived as critical for certain aspects of studies specified in the PI's R01 grant application to NIH. The results will serve as a foundation for further investigation of BrpA in *S. mutans* virulence modulation and its potential as an anti-caries strategy.

The PI has a NIH proposal pending entitled “BrpA in Virulence Modulation of *Streptococcus mutans*” in the amount of \$1,420,000. Should the PI receive funding for the pending NIH proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

It is recommended that the proposed budget be revised to limit travel support to \$1,500, delete \$650 in printing charges, and rental/shipping charges of \$100 each should be considered supplies, resulting in a year-one budget of \$45,963, with similar amounts for year two and year three.

Year 1: \$45,963

Year 2: \$45,963

Year 3: \$45,963

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 149A**RANK: 1****TITLE: Role of CD2 Peptides in Immunomodulation****INSTITUTION: University of Louisiana at Monroe****PRINCIPAL INVESTIGATOR: Seetharama D. Satyanarayanajois**

T-cell adhesion molecules of co-stimulatory molecules have important roles in immune response and autoimmune diseases such as rheumatoid arthritis (RA). The long-term objective of this proposal is to understand the role of a pair of adhesion molecules, CD2-CD58 proteins, in controlling the mechanism of immune response at the molecular level. The central hypothesis is that peptides derived from CD2 can bind to CD58 and block the adhesion between T-cell and target cell to modulate immune response. The result of blocking CD2-CD58 interaction will lead to suppression of the T-cell activation in autoimmune diseases (i.e., RA). The PI of the project is a new faculty member and must overcome several barriers to compete for federal funding. The PI is an excellent scientist with a strong track record in the area of peptide mimics and has now published some preliminary data. The institutional support for the PI is very strong.

The PI has a NIH proposal pending entitled “Modulation of Cell Adhesion via CD2 Protein” in the amount of \$150,000. Should the PI receive funding for the pending NIH proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

It is recommended that the proposed budget be revised to limit travel support to \$1,500, supplies to \$20,000, and delete publication charges, resulting in a year-one budget of \$34,000, with similar amounts for year two and year three.

Year 1: \$34,000**Year 2: \$34,000****Year 3: \$34,000**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 021A**RANK: 1****TITLE: Evolution of the Louisiana Pitcher Plant and its Commensal Organisms****INSTITUTION: Louisiana State University – Baton Rouge****PRINCIPAL INVESTIGATOR: Bryan C. Carstens; Margaret M. Koopman**

The evolution of plant communities remains poorly understood, and consequently investigations into the evolutionary history of ecologically-interacting organisms are moving to the forefront of the biological sciences. The phylogenetically-diverse organisms associated with the carnivorous plant *Sarracenia* comprise a promising system for such investigations. The PIs seek to: (1) employ a novel combination of community genetics and environmental metagenomics to answer fundamental questions related to the evolutionary dynamics of this community; (2) use genomic finger-printing methods to characterize the bacterial fauna within the *Sarracenia* pitcher and; (3) quantify the population genetic structure of pitcher-specific bacterial strains, several obligate arthropods and the plants. This project will provide substantial insight into the evolution of *Sarracenia* as well as the functional role played by its bacterial and arthropod commensals.

The PI has a NSF proposal pending entitled “CAREER: Identifying the Cause of Lineage Divergence in North American *Myotis*” in the amount of \$509,991. Should the PI receive funding for the pending NSF proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

A significant decrease in the proposed budget is recommended that provides undergraduate student support of \$1,000, limits travel support to \$1,500, supplies to \$10,000, and 25% overhead of \$8,120, resulting in a year-one budget of \$52,100. A budget of \$50,100 that eliminates printing charges of \$2,000 is recommended for year two.

Year 1: \$52,100**Year 2: \$50,100**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 083A**RANK: 1****TITLE: Probing the Role of Structure and Chemical Content on the Water Uptake Processes of Chemically Mixed, Atmospherically Relevant Aerosolized Nanoparticles****INSTITUTION: Loyola University New Orleans****PRINCIPAL INVESTIGATOR: Joelle S. Underwood**

Nanoparticles of both anthropogenic and biogenic sources are ubiquitous in the atmosphere. Also called aerosol, these particles exert a significant influence on their environment due to their unique chemistry and photochemistry. They can participate in atmospheric reactions, aid in transport of nonvolatile and semi-volatile material and play an important role as cloud condensation nuclei and affect the earth's albedo. The experiments suggested in this proposal will partner in situ and ex situ probes of aerosol structure, size, and chemical content to develop a fuller understanding of these factors in the water uptake processes of chemically mixed, atmospherically relevant aerosol with diameters < 100 nm. The proposal outlines activities to enhance the PI's research competitiveness at the federal level.

Only a minor reduction in the proposed budget is recommended that eliminates printing charges of \$1,500, for a year-one budget of \$43,390. Budgets of \$41,675 and \$29,693 are recommended for year two and year three, respectively.

Year 1: \$43,390**Year 2: \$41,675****Year 3: \$29,693**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 133A**RANK: 1****TITLE: Geometric Structures and Their Applications****INSTITUTION: University of Louisiana at Lafayette****PRINCIPAL INVESTIGATOR: Miao Jin**

The PI is a new faculty member seeking to establish a research program focusing on geometric structures and their applications in broad engineering fields as computer graphics, computer vision, and medical imaging. Geometric structures are natural structures of surface and volumes, which enable different geometries to be defined on the surfaces or volumes coherently, and have a great potential to solve many real problems in engineering fields. The PI will focus on: (1) design n-rotational symmetries field on general surfaces based on surfaces' conformal structure, and apply to remeshing and non-photorealistic style of shape visualization in computer graphics; (2) implement an automatic 3D geometry index and retrieval system, and apply for 3D human face recognition in computer vision and; (3) compute the topological structure of volumetric data, and apply to 3D volumetric medical data analysis and classification, gene classification, clustering, and prediction.

It is recommended that the proposed budget be reduced to provide one month summer salary for the PI, delete \$500 in printing charges and limit travel to \$1,500, for a year-one budget of \$37,410, with similar amounts for year two and year three.

Year 1: \$37,410**Year 2: \$37,410****Year 3: \$37,410**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 014A**RANK: 1****TITLE: Genesis of N40°W Linear Trend of Kimberlite-Carbonatite Magmatism
From Louisiana to Canada****INSTITUTION: Louisiana State University - Alexandria****PRINCIPAL INVESTIGATOR: Genet Ide Duke**

A recently recognized N40°W trend of kimberlites and carbonatites from the Black Hills (SD) to Canada extends southeast to kimberlites and carbonatites in KS, AR, LA, and MS. A tectonomagmatic model proposed for the northern extent suggests that the edge of the Kula plate focused melts upward along the trend, aided by prior initiation of lithospheric extension at ~53-49 Ma. In contrast, a mantle “superplume” model was proposed to explain the linearity of the southern extent. It is not likely that both models are correct. Resolving the issue of genesis will require precise age determination of rocks in MT, WY, and AR. Major and trace-element geochemical analyses will be necessary in supporting any final tectonomagmatic model. The PI proposes to collect necessary samples and obtain: (1) precise age determinations; (2) isotopic analyses for assessing potential magma sources and; (3) geochemical and petrographic analyses in support of a unifying tectonomagmatic model to explain the genesis of the N40°W linear trend.

It is recommended that proposed budget be revised to limit travel support to attend a national meeting for the PI as well as two undergraduate students to \$1,500 and delete printing charges, for a year-one budget of \$40,423. The lab facilities for use of a spectrometer at the University of Kansas or the University of Arizona should be carried out on these samples in year two of the program rather than in year three, resulting in a year-two budget of \$40,000. A similar budget of \$40,000 is recommended for year three that includes the lab facilities charges covering the rare gas mass spectrometer at the USGS in Denver for 15 samples.

Year 1: \$40,423**Year 2: \$40,000****Year 3: \$40,000**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 030A**RANK: 1****TITLE: Manipulation, Alignment and Organization of Carbon Nanotubes Using
Liquid Crystals: A Computer Simulation Study****INSTITUTION: Louisiana State University – Baton Rouge****PRINCIPAL INVESTIGATOR: Francisco R. Hung**

In this study the PI proposes to use computer simulation to investigate the use of liquid crystals (LCs) to manipulate and organize carbon nanotubes (CNTs). Results from this project will be relevant for developing high-quality dispersions of CNTs in LCs, which have potential applications in displays, nanoscale electronics, optical sensors, and in the development of composites with unique mechanical, thermal and/or electronic properties. The PI proposes to perform Molecular Dynamics simulations of CNTs and LCs with different molecular structures. The PI also proposes to use computer simulations to explore the use of LCs combined with surface and/or channels with tailored properties, for manipulation and organization of CNTs. The PI seeks to influence future experimental efforts in the area and reduce the need for trial-and-error experiments.

Only a minor reduction in the proposed budget is recommended that limits travel support to \$1,500, resulting in a year-one budget of \$42,430, with similar amounts for year two and year three.

Year 1: \$42,430**Year 2: \$42,430****Year 3: \$42,430**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 051A

RANK: 1

TITLE: Mechanisms of Cardiac Damage from Inhaled Particulate Matter

INSTITUTION: Louisiana State University Health Sciences Center – New Orleans

PRINCIPAL INVESTIGATOR: Jason D. Gardner

Airborne particulate matter (PM) inhalation is a causative factor for cardiopulmonary morbidity and mortality. Yet, little is known about the underlying cause of the cardiovascular effects. The PI's hypothesis is that the adverse cardiac effects of inhaled PM are due to cardiac mast cell activation. The proposed studies will develop a rodent model of PM exposure to perform a systematic study of the contribution of cardiac mast cells to PM-induced cardiac damage. The following aims will be addressed: (1) Establish the effects of inhaled diesel exhaust particulates on cardiac function and structure in a rodent model; (2) Determine the phenotypic and functional alterations in cardiac mast cells in response to inhaled diesel exhaust particulates and; (3) Determine the impact of PM-induced alterations in cardiac function and structure on the ability of the heart to respond to volume-overload stress. These studies will establish a preclinical model to study cardiac mast cell involvement in PM inhalation injury.

It is recommended that the proposed budget be reduced to provide one month salary for the PI in lieu of 10% effort, delete printing charges of \$600, and limit supplies to \$10,000, for a year-one budget of \$49,257, with similar amounts for year two and year three.

Year 1: \$49,257

Year 2: \$49,257

Year 3: \$49,257

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 137A**RANK: 15****TITLE: Reservoirs and Population Dynamics of Free Living *Symbiodinium* in the Reef Environment****INSTITUTION: University of Louisiana at Lafayette****PRINCIPAL INVESTIGATOR: Mauricio Rodriquez-Lanetty**

Coral reefs around the world are in decline, with much of the mortality attributed to coral bleaching - the loss of their photosynthetic microalgal symbionts - resulting from global warming. To understand how corals may respond to current threats, such as global warming, and to successfully manage and protect potential environmental sources of microalgal symbionts that are vital during the onset of their symbiosis with coral, a better understanding of the precise habitats of free-living *Symbiodinium* in the reef environment is urgently needed, as the symbionts may repopulate reef corals after bleaching events. The main purpose of this research is to identify the reservoirs of *Symbiodinium* in reef environments in the Florida Keys and to understand the temporal dynamics of these free-living *Symbiodinium* populations in their respective reservoirs. This research will provide a young scientist a chance to participate in the development of experiments that range from classical ecology to molecular ecology, including both lab and marine field experiments/procedures.

The PI has a NSF proposal pending entitled “Exploring the Adaptation and Acclimatization Potentials of Tropical Reef Corals to Global Climate Change” in the amount of \$128,000 (Proposal No: 0851123). Should the PI receive funding for the pending NSF proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

A significant decrease in the proposed budget is recommended that provides one month's salary of \$6,444 for the PI, fringe benefits of \$1,953, undergraduate student support of \$2,000, \$11,400 for supplies, and overhead of \$7,099, resulting in a year-one budget of \$53,496. A budget of \$52,000 is recommended for year two and year three.

Year 1: \$53,496**Year 2: \$52,000****Year 3: \$52,000**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 119A**RANK: 16****TITLE: Identification of Lymphatic Vessel Structure and Function in Adult
Microvascular Networks****INSTITUTION: Tulane University****PRINCIPAL INVESTIGATOR: Walter Lee Murfee III; L. Gabriel Navar**

Microvascular dysfunction associated with lymphedema, cancer metastasis and other pathological conditions emphasizes the need to better understand how fluid enters lymphatic vessels and how lymphatic vessels grow. Identification of the cellular dynamic overlaps between angiogenesis and lymphangiogenesis will prove critical for the future development and assessment of cell-specific therapies targeted at manipulating these two processes. The specific aims of this research are to: 1) evaluate the structure and endothelial cell phenotypes associated with lymphatic/blood vessels connections in adult rat mesenteric microvascular networks; 2) determine whether or not direct lymphatic/blood vessel connections provide sites for fluid conductance in adult rat mesenteric microvascular networks and; 3) quantify pericyte-endothelial cell association along lymphatic capillary sprouts in adult microvascular networks. By building upon preliminary data and previous publications, the results will also establish foundations for future federal funding and promote the national competitiveness of the principal investigator.

It is recommended that the year-one budget of \$54,418 be funded at the level requested. A similar budget of \$54,418 is recommended for year two and year three.

Year 1: \$54,418**Year 2: \$54,418****Year 3: \$54,418**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 103A**RANK: 17****TITLE: Electron-induced Bond Cleavage: Towards Simulations of p-stacked Nucleotides****INSTITUTION: Southeastern Louisiana University****PRINCIPAL INVESTIGATOR: Thomas Sommerfeld**

The scientific goals of this proposal are to develop and apply a semiempirical method for simulating realistic models of reactions following electron attachment to a DNA-base within a π -stack, that is-simulation of at least a double-strand fragment consisting of three base-pairs with sugars and phosphate groups. Envisioned are three projects: (1) expanding the scarce experimental reference data with ab initio results; (2) establishing a semiempirical Hamiltonian for attachment energies and; (3) application of the new method to DNA-bases, bases in π -stacks, and a model strand consisting of at least six nucleotides. The goals for achieving national competitiveness are to move into a new research field that is more suitable for undergraduate researchers, and to establish a track record of high quality research conducted in the environment of a primarily undergraduate institution.

Only a minor reduction in the proposed budget is recommended that limits travel support to \$1,500, resulting in a year-one budget of \$22,290. A budget of \$20,790 is recommended in year two and in year three only one month's summer salary should be permitted for the PI including fringe benefits and 25% overhead, for a budget of \$18,850.

Year 1: \$22,290**Year 2: \$20,790****Year 3: \$18,850**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 025A

RANK: 18

TITLE: A Heterogeneous-Based Modeling Approach to Describe the Constitutive Behavior of Asphalt Concrete

INSTITUTION: Louisiana State University – Baton Rouge

PRINCIPAL INVESTIGATOR: Mostafa Elseifi; Louay Mohammad; Marwa Hassan

Asphalt concrete is a composite mixture that consists of aggregates, binder, and air voids. One of the major factors contributing to the premature deterioration and failure of flexible pavement systems is the reliance on simplified analysis methods that assume that asphalt concrete may be described as a continuum elastic material while overlooking the particulate and elastoviscoplastic natures of this composite. This researcher proposes to conceive, test, and validate a heterogeneous-based modeling approach for asphalt mixtures based on micromechanical Finite Element (FE) methods and digital image analysis techniques in order to simulate the three-dimensional behavior and response of the mix in the dynamic complex modulus test.

It is recommended that the project is funded at the level requested.

Year 1: \$43,066

Year 2: \$41,607

Year 3: \$34,570

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 136A**RANK: 19****TITLE: Design and Development of Coordination and Control Mechanisms for
Sensor-enabled Software Systems****INSTITUTION: University of Louisiana at Lafayette****PRINCIPAL INVESTIGATOR: Ashok Kumar**

Computers, tools, appliances, and gadgets that employ sensors are touted to become the most widely used computational/communication devices in time. To be able to make such gadgets and appliances common in everyday life, remarkable research efforts are taking place in the fields of wireless networking as well integrated circuitry design. The proposed study envisions research and development of a sensor-enabled software based system that will monitor activities such as street race, boat race, and flow of traffic using a network of sensors. The emphasis of the proposed research is on developing algorithms for coordination, control, and management of such sensor-enabled software based systems. The proposed study has tremendous benefits in terms of saving lives, monetary gains, and protection from intrusion.

Only a slight reduction in the proposed budget is recommended that limits travel support to \$1,500 rather than \$5,000, resulting in a year-one budget of \$37,808, with similar budgets for year two and year three.

Year 1: \$37,808**Year 2: \$37,808****Year 3: \$37,808**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 079A

RANK: 20

TITLE: Novel Solar Energy Harvesting Using MEMS Devices

INSTITUTION: Louisiana Tech University

PRINCIPAL INVESTIGATOR: Leland Weiss

Over the past several years, trends in energy cost have driven an increased awareness of energy use and the need to develop legitimate alternative sources. There are many methods to address this important issue. One such approach is to capture solar thermal energy for use in MEMS-based engines that produce power output. In this research the PI will pursue the development of solar energy use to address energy concerns on both macro and micro scales. The PI will use MEMS techniques and characterization methods to design and fabricate unique solar collectors and steam systems for this purpose. The devices will produce useful power output with broad application. The proposed project will enable the principal investigator to achieve national competitiveness and to develop a strong research program in the area of alternative energy sources using advantages leveraged from microscale devices.

Only a minor reduction in the proposed budget is recommended that limits travel support to \$1,500, for a year-one budget of \$47,116 and a budget of \$44,756 for year two and year three.

Year 1: \$47,116

Year 2: \$44,756

\$44,756

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 036A**RANK: 21****TITLE: Screening of Integrin alpha(IIb)beta(3) Inhibitors by SHG****INSTITUTION: Louisiana State University –Baton Rouge****PRINCIPAL INVESTIGATOR: Bing-Hao Luo**

Integrin α IIb β 3 plays an essential role in the maintenance of normal hemostasis and the formation of thrombus by mediating platelet aggregation and platelet spreading on vascular matrices. Integrin conformational change from the “bent” to the “extended” form is essential for integrin ligand binding and signaling. Recently, the PI has successfully applied second-harmonic generation (SHG) to detect conformational changes in three integrins. The hypothesis is that SHG is a powerful technique which can be used to discover novel small molecules that are conformation-specific, in this case to stabilize the bent conformation of α IIb β 3. The goal is to become established nationally in this research field and more specifically to obtain preliminary data on this project and then compete for NIH funding.

The PI has a NIH proposal pending entitled “Screening of Integrin alpha(IIb)beta(3) Antagonists” in the amount of \$322,850. Should the PI receive funding for the pending NIH proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

It is recommended that the proposed budget be reduced to provide one month’s salary of \$7,256 for the PI, fringe benefits of \$2,539, and 25% overhead, for a year-one budget of \$47,244. A similar budget is recommended for year two and year three.

Year 1: \$47,244**Year 2: \$47,244****Year 3: \$47,244**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 150A

RANK: 22

**TITLE: Towards a Comprehensive-multigene Phylogeny of Valerianaceae
(Dipsacales)**

INSTITUTION: University of New Orleans

PRINCIPAL INVESTIGATOR: Charles D. Bell

In this proposed research the PI aims to identify and sequence genetic markers that will help in resolving the species level relationships within Valerianaceae. This multi-gene study will be a model for molecular evolution of several molecular markers at a wide taxonomic breath. It will also provide an empirical example for the use of estimating large-scale phylogenies. The specific goals are to: 1) Identify and sequence additional chloroplast DNA and nuclear markers that may help further resolve the phylogeny of Valerianaceae; 2) conduct a comprehensive analysis of variation in rates and modes of sequence evolution across genes, genomes, and lineages and; 3) by using the results of objectives 1 and 2, investigate character evolution and potential correlates with shifts in diversification rates. This should establish the PI's reputation as an independent researcher.

It is recommended that the proposed budget be reduced to provide undergraduate student support of \$1,000, limit travel to \$1,500, delete \$1,000 in publication costs, reduce supplies to \$10,000, with 25% overhead, for a year-one budget of \$50,867. Similar budgets are recommended for year two and year three.

Year 1: \$50,867

Year 2: \$50,867

Year 3: \$50,867

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 118A

RANK: 23

TITLE: Engineered Tissue Culture Micro-Environments for Studies in Axon Regeneration

INSTITUTION: Tulane University

PRINCIPAL INVESTIGATOR: Michael J. Moore

Disorders of the central nervous system are often associated with little or no recovery, due to in part to poor neural regenerative capacity, damaging and inhibitory mechanisms that persist after initial neuronal injury, and the difficulty in guiding axons to their proper functional targets. It may be possible to influence the growth direction of regenerating axons by incorporating such developmental ligands into 3D matrices. The overall goal of this project is to develop a 3D tissue culture model to study the guidance of retinal neuritis in response to engineered cues that mimic the spatial distribution of ligands found at the optic chiasm during development. This study would establish an experimental platform to control in a systematic way the structural, cellular, and molecular tissue microenvironment *in vitro*.

The proposed budget requires revision to provide one month's summer salary for the PI of \$8,812, fringe benefits of \$531, limit travel support to \$1,500, and 25% overhead, resulting in a year-one budget of \$49,429. A similar amount of \$49,429 is recommended for year two and year three.

Year 1: \$49,429

Year 2: \$49,429

Year 3: \$49,429

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 153A**RANK: 24****TITLE: High Performance Parallel & Distributed Algorithms for Nonlinear Particle Filtering****INSTITUTION: University of New Orleans****PRINCIPAL INVESTIGATOR: Vesselin P. Jilkov**

Funding this proposal has a dual goal: (a) advancement of science and technology for sensor data processing systems and (b) help the PI overcome existing barriers and become nationally competitive. It is proposed that the research will create industrial strength nonlinear filters for real-time data processing by developing highly efficient parallel and distributed numerical algorithms and architectures for Monte Carlo based filtering. The area of application is vast—it includes for example any kind of military and civilian surveillance, target tracking, and multi-sensor fusion systems that extract information about unknown states of dynamic objects by processing data from noisy sensors such as radar, sonar, infrared, TV cameras, etc. The PI will use his expertise in the areas of target tracking & data fusion, nonlinear particle filtering, and parallel data processing to develop state-of-the-art particle filters with application to the target tracking and multi-sensor data areas. The PI has significant potential to successfully complete this project and become nationally competitive.

A slight reduction in the proposed budget is recommended that limits travel support to \$1,500 and deletes publication charges of \$1,000, resulting in a year-one budget of \$36,381. Similar budgets are recommended for years two and three.

Year 1: \$36,381**Year 2: \$36,381****Year 3: \$36,381**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 114A**RANK: 25****TITLE: DNA-Small Molecule Chimeras: Stimuli Responsive Protein-Binding Agents****INSTITUTION: Tulane University****PRINCIPAL INVESTIGATOR: Janarthanan Jayawickramarajah**

A significant disadvantage of traditional chemotherapeutic agents is our inability to control their protein-binding activity after systemic administration. This lack of control can result in serious drug-induced side effects leading to poor patient outcomes. Thus, it is of vital importance to develop “smart” agents with protein-binding potency that can be well-controlled even after administration. In order to achieve such dynamic therapeutic agents, novel molecules that are responsive to specific stimuli must first be designed. The current proposal aims to develop, in a generalizable manner, such molecules with regulable target protein-binding activity. It is envisioned that this project will significantly contribute to our understanding of molecular-recognition and supramolecular chemistry in competitive aqueous environments and will potentially lead to the development of safer and more effective therapeutic agents.

Only a minor reduction in the proposed budget is recommended that provides undergraduate student support of \$1,000, for a year-one budget of \$50,954. In year two and year three it is recommended that the project be funded at the level requested.

Year 1: \$50,954**Year 2: \$44,934****Year 3: \$36,420**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 047A**RANK: 26****TITLE: Holistic Machine Learning for Malicious Software Analysis and Identification****INSTITUTION: Louisiana State University – Baton Rouge****PRINCIPAL INVESTIGATOR: Jian Zhang**

Malicious software (malware) is one of the most serious threats in today's cyber space. Malware infects computers through various means. An infected computer not only may expose sensitive data but also may be controlled to carry out malicious activities such as distributed denial-of-service (DDoS) attacks and sending spam emails. Future generations of malware will require entirely new detection strategies. A promising direction to this end is the use of a multi-perspective, behavioral-oriented paradigm for malware identification. The key research problem in this paradigm is to develop fully automated methods to detect and analyze malware. There are new challenges that need to be addressed. First, it is a necessity to integrate information from multiple perspectives and to extract features that may not be available in any single perspective. Second, the detection methods must generalize to deal with possible malware variants. This research could lead to better defense systems against malware.

The PI has a NSF proposal pending entitled "TC: Medium: Collaborative Research: Multi-Perspective Bayesian Learning for Automated Diagnosis of Advanced Malware" in the amount of \$337,769. Should the PI receive funding for the pending NSF proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

Only a slight reduction in the proposed budget is recommended that limits travel support to \$1,500, for a year-one budget of \$44,468. A similar budget of \$44,468 is recommended for year two.

Year 1: \$44,468**Year 2: \$44,468**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 093A**RANK: 27****TITLE: Novel Remediation of Hazardous Lead by Nanostructured Trap and Field
Monitoring of Toxic Metals by a Portable XRF****INSTITUTION: Southeastern Louisiana University****PRINCIPAL INVESTIGATOR: Ju Chou**

Lead, a ubiquitous versatile metal, is considered a significant environmental threat. Even at low levels of lead exposure, children can develop severe side effects, including kidney damage, learning disabilities, and brain damage. Lead exposure increased in New Orleans after Katrina. The concentrations of lead in many samples exceeded EPA drinking water standards. Environmental threats from lead exposure have become a serious problem in New Orleans; thus it is important to regularly monitor lead levels, and to remove lead from contaminated sites. The overall objectives are to develop remediation techniques to remove lead from environmental samples and to conduct an environmental assessment and identification of public health threats caused by exposure to hazardous lead. The PI will develop nano-structured materials to increase deposition rates of lead on designed materials, and thus to improve removal rates using electrochemical technology. This research will also focus on detection of the environmental contaminant metals such as lead, mercury, arsenic, cadmium, and chromium in lakes and soils.

Only a slight reduction in the proposed budget is recommended that deletes \$200 in printing charges, resulting in a year one budget of \$51,048. Budgets of \$34,111 and \$34,546 are recommended for year two and year three, respectively.

Year 1: \$51,048**Year 2: \$34,111****Year 3: \$34,546**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 159A

RANK: 28

TITLE: Design of a Potent and Selective Small Molecule Kv1.5 Blocker as Potential Therapeutic for Treating Atrial Fibrillation

INSTITUTION: University of New Orleans

PRINCIPAL INVESTIGATOR: Ananthakrishnan Sankaranarayanan

Voltage-gated potassium channels regulate resting membrane potential and cell volume in non-excitabile cells and fine tune action potential firing in excitable cells. The main objective of this proposal is to design and develop a potent and selective small molecule Kv1.5 blocker which could be developed into a potential therapeutic for treating life-threatening cardiac arrhythmias such as Atrial Fibrillation. The PI has reversed the selectivity of the PAPs and generated several potent Kv1.5 blockers. Using PAPs and phenoxybenzothiazolamines as lead compounds the PI plans to generate more potent and selective Kv1.5 blockers through a combination of electrophysiology and medicinal chemistry.

It is recommended that the proposed budget be reduced to delete \$1,000 in publication charges, for a year-one budget of \$48,750, with similar amounts for year two and year three.

Year 1: \$48,750

Year 2: \$48,750

Year 3: \$48,750

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 052A

RANK: 29

TITLE: The Role of the Ras Homolog Rhes in Dopamine Receptor Signaling

INSTITUTION: Louisiana State University Health Sciences Center – New Orleans

PRINCIPAL INVESTIGATOR: Laura Harrison

Dysregulation of dopamine systems is involved in many human disorders, such as schizophrenia and drug addiction, but the mechanism of involvement is unknown. In this proposal the PI will focus on a particular signaling molecule, the Ras Homolog Enriched in Striatum, or Rhes. The PI has shown that the rhes gene is expressed in rodent brain areas that receive dopamine input and that gene expression is decreased when dopamine receptors are supersensitive. Therefore, the objectives of this proposal are to test the hypotheses: (1) Rhes interacts with particular proteins involved in D2 receptor signaling and; (2) Rhes affects signaling and behavior through D2 receptors. This project will bring together two novel areas of signaling research.

It is recommended that the proposed budget be revised to provide one month salary for the PI, resulting in a year-one budget of \$32,952, with a similar amount in year two.

Year 1: \$32,952

Year 2: \$32,952

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 068A**RANK: 30****TITLE: Development of a Multi-scale Tool to Study Electronic, Geometrical and Conductive Properties of Polymers****INSTITUTION: Louisiana Tech University****PRINCIPAL INVESTIGATOR: Pedro Derosa**

A multi-scale modeling tool, able to evaluate geometrical and electronic characteristics of oligomer, as well as charge transport in polymers will be developed. Conformational characteristics of oligomers will be studied at the semiempirical level; density functional theory (DFT) calculations will follow for a more accurate prediction of electronic properties. Green's Functions technique will be used to predict density of state on large systems. Information from DFT molecular structure and a Green's Function model will be used in a Monte Carlo method to study both polaron and polaron-free charge transport. The proposed study will advance fundamental knowledge of conductive polymers, establish a multi-scale modeling tool to calculate conductive properties of polymeric devices, and contribute to the design and characterization of actual polymeric devices.

The PI has a NSF proposal pending entitled "CAREER: Development of a Multi-Scale Tool to Study Conductive Properties of Polymers" in the amount of \$585,032. Should the PI receive funding for the pending NSF proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

It is recommended that the proposed budget be revised to provide \$1,000 in undergraduate student support, for a year-one budget of \$62,807. A budget of \$49,000 is recommended for year two and year three.

Year 1: \$62,807**Year 2: \$49,000****Year 3: \$49,000**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 071A**RANK: 31****TITLE: Metamaterials for Applications in STEALTH Technology (MAST)****INSTITUTION: Louisiana Tech University****PRINCIPAL INVESTIGATOR: Dentcho A. Genov**

Metamaterials exhibiting complex electric and magnetic responses have been the focus of recent efforts to create a negative refraction index media, invisibility devices and lenses with super resolution. So far all proposed systems suffer from high losses and narrow frequency range of operation. While introduction of new metamaterials may improve the overall performance, it is important to go beyond the resonant nature of the current physical and engineering solutions. The PI proposes to use his recent well-recognized contributions to the field of metamaterials as a platform for launching his independent scientific career while addressing important open challenges in this field. In the next three years the PI proposes to theoretically study the possibility of cloaking micro- and macroscopic size objects from microwave, visible and infrared radiation using pure dielectric materials.

Only a slight reduction in the proposed budget is recommended that limits travel support to \$1,500, for a year-one budget of \$47,891. A budget of \$42,844 is recommended for year two and year three.

Year 1: \$47,891**Year 2: \$42,844****Year 3: \$42,844**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 035A**RANK: 32****TITLE: Genetic Dissection of RNAi-directed Antiviral Immunity in *C. elegans*****INSTITUTION: Louisiana State University – Baton Rouge****PRINCIPAL INVESTIGATOR: Rui Lu**

RNA interference (RNAi) is a novel gene regulation mechanism shared by eukaryotes. RNAi silences gene expression at transcriptional or posttranscriptional levels and thereby controls a wide variety of biological functions. One of the major biological functions of RNAi is antiviral. So far, although RNAi has been established as a major antiviral innate immunity in a broad spectrum of organism species such as fungi, plants and insects, little is known about the mechanistic basis of this biological event. As a result, we are still being challenged by important questions such as how virus invasion is sensed by the RNAi machinery, where the intruding viruses are destroyed inside the cell, and whether the function of the antiviral RNAi genes is regulated in response to virus attack. To address these questions the PI proposes using a genome wide genetic screen to look for host factors involved in antiviral RNAi pathway using a *C. elegans* worm strain. Success of this research should facilitate the development of antiviral strategies for diseases control in agriculture and human health.

Only a minor reduction in the proposed budget is recommended that limits travel support to \$1,500, for a year-one budget of \$47,650. A similar budget is recommended for year two and year three.

Year 1: \$47,650**Year 2: \$47,650****Year 3: \$47,650**

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 027A

RANK: 33

**TITLE: Predictive Modeling of Construction Process Operations in
Transportation Projects and Decision-Making Automation**

INSTITUTION: Louisiana State University – Baton Rouge

PRINCIPAL INVESTIGATOR: Marwa Hassan

It is well-established that construction simulation is an effective methodology for the design and analysis of construction operations. However, implementation of simulation by construction firms has been limited but successful in most cases. The proposed research will develop a methodology that implements artificial neural networks technique as an alternative and simple solution for the simulation of construction operations in large scale transportation projects. This project will utilize the flexibility of artificial neural networks to perform the complex mapping from resources and operating conditions to estimation of valuable performance measures such as productivity and delays. Field measurements will be used to verify and validate the developed methodology.

The PI has a NSF proposal pending entitled “CAREER: Prospective Technology Assessment: A Framework to Predict the Impact of Nanotechnology on the Sustainability of the Construction Industry Using Life Cycle Assessment” in the amount of \$401,102. Should the PI receive funding for the pending NSF proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

It is recommend that the project be funded at the level requested.

Year 1: \$42,169

Year 2: \$37,959

Year 3: 35,043

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 016A

RANK: 34

TITLE: Talker-Specific Speech Perception in Louisiana's Toddlers

INSTITUTION: Louisiana State University – Baton Rouge

PRINCIPAL INVESTIGATOR: Brittan A. Barker

Ideally, babies born in Louisiana who are diagnosed with hearing loss are promptly equipped with hearing devices and this early diagnosis yields successful members of the community. However, early diagnosis does not guarantee such success. The implementation of a thoughtful listening intervention program is crucial for these toddlers to become flourishing speech perceivers and producers. The PI proposes to fill voids in the normal-hearing pediatric literature and gain a better understanding of talker-specific speech perception in toddlers. These studies would allow the field to work toward a comprehensive biologically plausible theory of speech perception, subsequently laying a foundation for pediatric listening intervention.

It is recommended that the proposed budget be reduced to provide one month's summer salary of \$6,578 for the PI, fringe benefits of \$2,303, delete printing charges of \$300, and 25% overhead, for a year-one budget of \$33,166. A budget of \$32,366 is recommended for year two and year three.

YEAR 1: \$33,166

YEAR 2: \$32,366

YEAR 3: \$32,366

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL: 143A

RANK: 35

TITLE: Function of a Hypothetical Protein Slr0110 of *Synechocystis* sp. PCC 6803 in Light and Glucose-induced Signal Transduction

INSTITUTION: University of Louisiana at Lafayette

PRINCIPAL INVESTIGATOR: Wu Xu

The primary objective of this research is to understand the detailed biochemical function(s) of a hypothetical protein Slr0110 in light- and glucose-induced signal transduction in cyanobacterium, *Synechocystis* sp. PCC 6803. Slr0110, identified by the targeted mutagenesis approach, is postulated to have a direct or indirect role in regulating photosynthesis and/or respiration, since the slr0110-deficient cells exhibit severe growth defect under the normal light condition in the presence of glucose. The PI envisions that the unique phenotype of these strains can be used as a research tool to address the fundamental questions on how *Synechocystis* sp. PCC 6803 regulates photosynthesis and respiration.

The PI has a NSF proposal pending entitled “Tunable Nanoparticles: Drug Delivery and Cellular Uptake” in the amount of \$309,003. Should the PI receive funding for the pending NSF proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

It is recommended that the project be funded at the level requested for year one and year two. A similar amount of \$48,801 is recommended in year three.

Year 1: \$53,294

Year 2: \$48,801

Year 3: \$48,801

The Institutional Match pledged in the proposal should be maintained in full.

PROPOSAL NO.: 152A

Rank 36

TITLE: Performance Modeling and Prediction of Distributed Sensing and Data Fusion Algorithms

INSTITUTION: University of New Orleans

PRINCIPAL INVESTIGATOR: Huimin Chen

This project proposes to study the modeling and prediction of distributed sensing and data fusion algorithms. The effective use of multiple sensors and data processors requires a deep understanding of the mechanisms in coordinating the tasks for each system component to achieve a common goal globally. This proposal addresses four fundamental questions and provides solution methodologies with a unified performance metric in designing effective algorithms for information gathering and data fusion. Research competitiveness will be achieved through a specific plan of presentations at the international conferences, publications in peer reviewed journals and applications to promising federal and private funding programs.

The PI has a NSF proposal pending entitled “IHCS: A Multiple Model Approach to Low Energy Design of Heterogenous Embedded Systems” in the amount of \$403,243. Should the PI receive funding for the pending NSF proposal the PI should be considered nationally competitive and the requested funds from the LEQSF program should not be awarded.

The proposed budget requires only a modest revision that deletes publication charges and limits travel support to \$1,500, for a year-one budget of \$37,474, with similar amounts for year two and year three.

YEAR 1: \$37,474

YEAR 2: \$37,474

YEAR 3: \$37,474

The Institutional Match pledged in the proposal should be maintained in full.

APPENDIX F**COMMENTS ON PROPOSALS RANKED PRIORITY I BY THE
SUBJECT AREA PANELS AND CONSIDERED BY THE FINAL PANEL
BUT NOT RECOMMENDED FOR FUNDING****PROPOSAL NO.: 008A****TITLE: The Role of Plant Pathogens in Marsh Dieback (Brown Marsh Syndrome)****INSTITUTION: Louisiana State University - Agricultural Center****PRINCIPAL INVESTIGATOR: Carrie A. Knott; Raymond W. Schneider**

To successfully obtain federal funding, preliminary data containing larger numbers of plants and fungal isolates are necessary. The objectives of this proposal are to: (i) document the interactions of physical/chemical stressors and plant pathogens in causing smooth cordgrass mortality for 13 genetically different lines; (ii) determine the environmental conditions that favor catastrophic dieback in salt marshes; (iii) determine whether stress tolerant lines are also tolerant to plant pathogens and; (iv) develop simple and economical disease screenings that can be used to develop resistant smooth cordgrass lines if pathogens are shown to cause symptoms similar to the 2000 brown marsh syndrome.

The PI has a two-year USDA-CSREES grant entitled “Biological Approaches to Coastal Wetland Restoration” in the amount of \$387,064 which started on September 1, 2008. Therefore, the PI is considered to be nationally competitive.

PROPOSAL NO.: 053A**TITLE: Chymase: A New Therapeutic Target for Prevention of Diabetic Renal Disease****INSTITUTION: Louisiana State University Health Sciences Center – New Orleans****PRINCIPAL INVESTIGATOR: Lisa M. Harrison-Bernard**

The novel hypothesis is that chymase is the major route of intrarenal ANGII production in diabetic renal disease. The PI will use an obese diabetic mouse model (*db/db*) which exhibits renal pathophysiological features similar to human DN. The Specific Aims will establish that ACE-independent mechanisms contribute to the intrarenal production of ANGII in diabetes, and will determine the effect of chronic inhibition of ACE-dependent and ACE-independent pathways on the intrarenal formation of ANG peptides, and functional outcomes including blood pressure (BP), GFR, and histological indices of progression of renal disease. The PI proposes that inhibition of the proteolytic actions of chymase will provide a highly significant, novel therapeutic target to reduce the influence of intrarenally produced ANGII on diabetic kidney disease.

The PI has an R01 NIH grant entitled “DK062003/AT1 Receptors in Renal Microvascular Physiology,” which is a clear indication that she is nationally competitive.

PROPOSAL NO.: 054A

TITLE: The Role of a Gain-of-Function Mutant p53 in the Properties of Osteosarcoma Stem Cells

INSTITUTION: Louisiana State University Health Science Center – New Orleans

PRINCIPAL INVESTIGATOR: Tomoo Iwakuma

The hypothesis is that p53^{R172H} affects the properties of OsSCs and/or increases the population size of OsSCs in tumors, thereby enhancing metastatic potential and resistance to chemotherapeutic drugs of osteosarcomas. To test the hypothesis the PI has generated a mouse model of osteosarcoma expressing p53^{R172H}. The PI will isolate OsSCs from these mice and decipher the role of p53^{R127H} in the metastatic and chemotherapy-resistant properties of OsCs. Successful completion of this proposal will significantly improve the chances for the discovery of a novel, OsSC -targeted treatment.

The PI has an R01 NIH grant entitled “Contributions of Lung Inflammation to Bronchioalveolar Stem Cell Proliferation and Tumorigenesis in a Lung Tumor Model of Inhaled Cigarette Smoke and Asbestos” in the amount \$1,250,000, which began May 1, 2008 and continues until April 30, 2013. He is thus nationally competitive.

**OUT-OF-STATE EXPERTS WHO SERVED AS FINAL
AND FULL SUBJECT AREA PANELISTS**

FINAL PANEL

James R. Durig, Ph.D., Chair

Professor, Department of Chemistry and Geosciences
University of Missouri at Kansas City
Former Chair and Project Director, South Carolina EPSCoR Program

J. Michael Rigsbee, Ph.D.

Professor and Head, Department of Materials Science and Engineering
North Carolina State University

Richard Vulliet, Ph.D., D.V.M.

Professor, Laboratory of Veterinary Cytotherapeutics
Department of Veterinary Molecular Biosciences
University of California at Davis

Subject Area Panels

BIOLOGICAL SCIENCES I (Human Biology, Immunology, Virology and Microbiology)

Jeff Engler, Ph.D., Chair

Professor
Department of Biochemistry and Molecular Genetics
University of Alabama at Birmingham

Alan Kaplan, Ph.D.

Professor and Chair
Department of Microbiology, Immunology, and Molecular Genetics
University of Kentucky College of Medicine

Kirill M. Popov, Ph.D.

Associate Professor
Department of Biochemistry and Molecular Genetics
University of Alabama at Birmingham

BIOLOGICAL SCIENCES II (Natural Sciences, Ecology, Microbiology, Genetics)

Geoffrey A. Cordell, Ph.D. Chair

Professor and Director of Graduate Studies in Pharmacognosy
Department of Medicinal Chemistry and Pharmacognosy
College of Pharmacy
University of Illinois at Chicago

Gary Ervin, Ph.D.

Associate Professor
Department of Biological Sciences
Mississippi State University

CHEMISTRY

Burt Davis, Ph.D., Chair

Professor and Interim Director
Center for Applied Energy Research
University of Kentucky

Mario L. Ocelli, Ph.D.

President
MLO Consulting
Atlanta, GA

COMPUTER & INFORMATION SCIENCES

Sartaj Sahni, Ph.D., Chair

Distinguished Professor

Department of Computer & Information Sciences and Engineering

University of Florida

Oscar H. Ibarra, Ph.D.

Professor

Department of Computer Science

University of California at Santa Barbara

EARTH & ENVIRONMENTAL SCIENCES

Charles J. Wurrey, Ph.D., Chair

Associate Dean, College of Arts and Sciences

Professor, Department of Chemistry

University of Missouri at Kansas City

Consultant, U.S. Environmental Protection Agency

Donn S. Gorsline, Ph.D.

W. and D. Zinsmeyer Professor Emeritus of Marine Sciences

Department of Earth Sciences

University of Southern California

ENGINEERING B

Michael E. Prudich, Ph.D., Chair

Professor and Chair, Department of Chemical Engineering
Ohio University

William A. Hyman, Sc.D.

Professor of Bioengineering
Biomedical Engineering Program
Texas A & M University

Raul G. Longoria, Ph.D.

Associate Professor
Department of Mechanical Engineering
The University of Texas at Austin
Austin, TX

James R. Wilson, Ph.D.

Professor and Head
Department of Industrial Engineering
North Carolina State University
Raleigh, NC

HEALTH & MEDICAL SCIENCES

Gerald Sonnenfeld, Ph.D., Chair

Vice President for Research, Binghamton University
State University of New York
Binghamton, NY

Lawrence A. Palinkas, Ph.D.

Professor of Social Work and Anthropology
School of Social Work
University of Southern California
Los Angeles, CA

Eric Prossnitz, Ph.D.

Associate Professor
Department of Cell Biology and Physiology
University of New Mexico Health Science Center
Albuquerque, NM

APPENDIX H
RESEARCH COMPETITIVENESS SUBPROGRAM
FY 2008-09
SUMMARY OF PROPOSALS

164 TOTAL PROPOSALS

18	BS I	Biological Sciences I
26	BS II	Biological Sciences II
20	CHE	Chemistry
21	C/IS	Computer and Information Sciences
21	EAR	Earth and Environmental Sciences
40	ENG B	Engineering B
18	HEA	Health & Medical Sciences

TOTAL FIRST-YEAR FUNDS REQUESTED: \$8,982,693

**Summary of Proposals Submitted to the
Research Competitiveness Subprogram (RCS)
for the FY 2008-2009 Review Cycle**

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
001 A-09/BS	Molecular Regulators of the Central Mammalian Circadian Clock	Centenary College of Louisiana (Department of Biology)	Greg Q. Butcher		
	New Request		Contain Confidential/Proprietary Information? No	1	49,617
				2	42,737
				3	43,438
				TOTAL	135,792
002 A-09/BS	Localization of Contractile Proteins in Differentiated Rabbit Heart Cell	Dillard University (Division of the Natural Sciences and Public Health)	Ruby Broadway		
	New Request		Contain Confidential/Proprietary Information? No	1	76,112
				2	56,628
				3	47,263
				TOTAL	180,003
003 A-09/BS	Molecular Control of Gall Bladder Organogenesis: Generation of Transgenic Zebrafish	Dillard University (Department of Biology)	Latanya Hammonds-Odie		
	New Request		Contain Confidential/Proprietary Information? No	1	109,113
				TOTAL	109,113
004 A-09/BS	Rust Fungi of Louisiana--Biosystematics and Diversity	Louisiana State University and A&M College - Agricultural Center (Department of Plant Pathology and Crop Physiology)	M. Catherine Aime		
	New Request		Contain Confidential/Proprietary Information? No		39,500
					35,500
					30,500
				TOTAL	105,500
005 A-09/BS	Pheromone Communication in the Buck Moth <i>Hemileuca maia</i>	Louisiana State University And A&M College - Agricultural Center (Department of Entomology)	Jeremy D. Allison		
	New Request		Contain Confidential/Proprietary Information? No	1	45,750
				2	38,125
				3	38,750
				TOTAL	122,625
006 A-09/BS	Comparative Genomics of Salt Stress Response Between a Grass Halophyte <i>Spartina alterniflora</i> (smooth cordgrass) and Glycophytic Rice	Louisiana State University And A&M College - Agricultural Center (School of Plant, Environmental, & Soil Science)	Niranjan Baisakh Prasanta Subudhi (Co-PI/PD) Norimoto Murai (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	42,076
				2	41,810
				3	30,874
				TOTAL	114,760

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
007 A-09/BS	Development of a Physiological Based Index of Condition to Determine Health in Crayfish	Louisiana State University And A&M College - Agricultural Center (Aquaculture Research Station)	Christopher C. Green		
	New Request		Contain Confidential/Proprietary Information? No	1	54,411
				2	49,695
				3	46,390
				TOTAL	150,496
008 A-09/EAR	The Role of Plant Pathogens in Marsh Dieback (Brown Marsh Syndrome)	Louisiana State University And A&M College - Agricultural Center (School of Plant, Environmental, and Soil Sciences)	Carrie A. Knott Raymond W. Schneider (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	68,392
				2	61,281
				3	67,101
				TOTAL	196,774
009 A-09/EAR	Development of the Method to Enhance the Recover and Reuse of Chromated Copper Arsenate (CCA) Wood Preservative from Spent (CCA) Treated Wood	Louisiana State University And A&M College - Agricultural Center (Calhoun Research Station)	Hui Pan Robert P. Gambrell (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	73,475
				2	48,528
				TOTAL	122,003
010 A-09/ENG B	Characterizing the Mechanical and Bonding Performance of Decommissioned Preservative-Treated Wood for Structural Laminated Products	Louisiana State University And A&M College - Agricultural Center (Calhoun Research Station)	Cheng Piao		
	New Request		Contain Confidential/Proprietary Information? No	1	59,750
				2	63,762
				3	61,900
				TOTAL	185,412
011 A-09/BS	Developing Value Added Functional Ingredients from Crawfish Processing Byproducts	Louisiana State University And A&M College - Agricultural Center (Department of Food Science)	Subramaniam Sathivel		
	New Request		Contain Confidential/Proprietary Information? No	1	57,750
				2	66,550
				3	65,500
				TOTAL	189,800
012 A-09/EAR	Rapid Assessment of Heavy Metal Spatial Variability in Urban Environments	Louisiana State University And A&M College - Agricultural Center (SPESS)	David C. Weindorf H.Magdi Selim (Co-PI/PD) Ron DeLaune (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	60,000
				2	33,750
				3	30,000
				TOTAL	123,750

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested		
013 A-09/BS	Structure and Mechanism of Action of CVSI-1, A Representative Member of a Novel Serine Protease Inhibitor Family from Marine Invertebratee	Louisiana State University And A&M College - Agricultural Center (Department of Veterinary Science)	Qinggang Xue Jerome F La Peyre (Co-PI/PD) Yong-Hwan Lee (Other Investigator)				
				New Request	Contain Confidential/Proprietary Information? No	1 2	42,739 40,239
						TOTAL	82,978
014 A-09/EAR	Genesis of N40 W Linear Trend of Kimberlite-Carbonatite Magmatism from Louisiana to Canada	Louisiana State University - Alexandria (Department of Mathematics & Physical Sciences)	Genet Ide Duke				
				New Request	Contain Confidential/Proprietary Information? No	1 2 3	45,373 38,332 55,240
						TOTAL	138,945
015 A-09/ENG B	An Investigation of Productivity of Industrial Construction Projects	Louisiana State University And A&M College - Baton Rouge (Dept. of Construction Management and Industrial Engr.)	Fereydoun Aghazadeh Craig M. Harvey (Other Investigator) Laura H. Ikuma (Other Investigator)				
				New Request	Contain Confidential/Proprietary Information? No	1 2	81,938 75,228
						TOTAL	157,166
016 A-09/HEA	Talker-Specific Speech Perception in Louisiana's Toddlers	Louisiana State University And A&M College - Baton Rouge (Department of Communication Sciences & Disorders)	Brittan A. Barker				
				New Request	Contain Confidential/Proprietary Information? No	1 2 3	44,568 46,001 48,243
						TOTAL	138,812
017 A-09/ENG B	Metabolic Engineering of <i>Saccharomyces cerevisiae</i> for Enhanced Ethanol Production from Biomass	Louisiana State University And A&M College - Baton Rouge (Department of Chemical Engineering)	Michael G. Benton				
				New Request	Contain Confidential/Proprietary Information? No	1 2 3	52,130 52,818 53,539
						TOTAL	158,487
018 A-09/EAR	Understanding the Spatio-Temporal Complexity of the North American Monsoon System Within the Lower Colorado River Basin, USA	Louisiana State University And A&M College - Baton Rouge (Department of Geography and Anthropology)	David P. Brown				
				New Request	Contain Confidential/Proprietary Information? No	1 2 3	86,161 58,313 55,520
						TOTAL	199,994

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested		
019 A-09/HEA	Testing the Utility of a Motivation Enhancement Intervention to Increase Appropriate Health Care Utilization Among Non-treatment Seekers	Louisiana State University And A&M College - Baton Rouge (Department of Psychology)	Julia D. Buckner				
				New Request	Contain Confidential/Proprietary Information? No	1	61,325
						2	61,500
						3	57,475
				TOTAL	180,300		
020 A-09/C/IS	Robust Data Structures for Information Processing in Wireless Sensor Networks	Louisiana State University And A&M College - Baton Rouge (Department of Computer Science)	Konstantin Busch				
				New Request	Contain Confidential/Proprietary Information? No	1	50,266
						2	49,885
						3	49,504
				TOTAL	149,655		
021 A-09/BS	Evolution of the Louisiana Pitcher Plant and its Commensal Organisms	Louisiana State University And A&M College - Baton Rouge (Department of Biological Sciences)	Bryan C. Carstens Margaret M. Koopman (Co-PI/PD)				
				New Request	Contain Confidential/Proprietary Information? No	1	61,100
						2	59,938
022 A-09/EAR	El Nino-Southern Oscillation (ENSO) and Paleo-Environmental Conditions in the Nepena Valley (North-Central Coast of Peru) during the Formative Period ...	Louisiana State University And A&M College - Baton Rouge (Department of Geography and Anthropology)	David Chicoine Patrick Hesp (Other Investigator) David Brown (Other Investigator)				
				New Request	Contain Confidential/Proprietary Information? No	1	79,119
						2	59,698
						3	60,828
				TOTAL	199,645		
023 A-09/EAR	Rediscovering America, Spain's "New World" View in 1537: Global Climate and Coastal Change Viewed from a 16th Century Baseline	Louisiana State University And A&M College - Baton Rouge (Department of Oceanography and Coastal Sciences)	Richard E. Condrey Paul E. Hoffman (Co-PI/PD) D. Elaine Evers (Other Investigator)				
				New Request	Contain Confidential/Proprietary Information? No	1	76,673
						2	68,499
024 A-09/ENG B	Microfluidic Solution for Living Cell Research	Louisiana State University And A&M College - Baton Rouge (Center for Advanced Microstructures and Devices)	Proyag Datta Alexandra Prange (Co-PI/PD) Jost Goettert (Other Investigator)				
				New Request	Contain Confidential/Proprietary Information? No	1	100,335
						2	90,476

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
025 A-09/ENG B	A Heterogeneous-Based Modeling Approach to Describe the Constitutive Behavior of Asphalt Concrete	Louisiana State University And A&M College - Baton Rouge (Department of Civil and Environmental Engineering)	Mostafa Elseifi Louay Mohammad (Co-PI/PD) Marwa Hassan (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	43,066
				2	41,607
				3	34,570
				TOTAL	119,243
026 A-09/ENG B	Developing and Validating SCADA Human Machine Operational Interface Standards	Louisiana State University And A&M College - Baton Rouge (Dept. of Construction Management & Industrial Engr.)	Craig M. Harvey Laura Ikuma (Co-PI/PD) Gerald M. Knapp (Other Investigator) Freydoun Aghazadeh (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	97,252
				2	94,370
				TOTAL	191,622
027 A-09/ENG B	Predictive Modeling of Construction Process Operations in Transportation Projects and Decision-Making Automation	Louisiana State University And A&M College - Baton Rouge (Dept. of Construction Management & Industrial Engr.)	Marwa M. Hassan		
	New Request		Contain Confidential/Proprietary Information? No	1	42,169
				2	37,959
				3	35,043
				TOTAL	115,171
028 A-09/ENG B	Sialic Acid Modified Polyamines to Prevent A-beta Toxicity <i>In vitro</i>	Louisiana State University And A&M College - Baton Rouge (Department of Chemical Engineering)	James Henry		
	New Request		Contain Confidential/Proprietary Information? No	1	53,236
				2	50,116
				3	51,046
				TOTAL	154,398
029 A-09/EAR	Dynamics of Mississippi River Plume and Offshore Transport of Freshwater on the Louisiana and Texas Continental Shelf	Louisiana State University And A&M College - Baton Rouge (Department of Oceanography and Coastal Sciences)	Haosheng Huang		
	New Request		Contain Confidential/Proprietary Information? No	1	60,000
				2	30,000
				3	10,000
				TOTAL	100,000
030 A-09/ENG B	Manipulation, Alignment and Organization of Carbon Nanotubes Using Liquid Crystals: A Computer Simulation Study	Louisiana State University And A&M College - Baton Rouge (Department of Chemical Engineering)	Francisco R. Hung		
	New Request		Contain Confidential/Proprietary Information? No	1	42,930
				2	43,118
				3	43,339
				TOTAL	129,387

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
031 A-09/ENG B	QoS Guarantees for Queuing Networks with Legendre Approach	Louisiana State University And A&M College - Baton Rouge (Dept. of Construction Management & Industrial	Xiaoyue Jiang Bhaba R. Sarker (Co-PI/PD) Pius E. Egbelu (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	35,538
				2	36,094
				3	36,671
				TOTAL	108,303
032 A-09/ENG B	Characterization of Foam Flow in Pipes by Using Catastrophe Theory	Louisiana State University And A&M College - Baton Rouge (Department of Petroleum Engineering	Seung Ihl Kam		
	New Request		Contain Confidential/Proprietary Information? No	1	36,546
				2	37,751
				3	38,993
				TOTAL	113,290
033 A-09/HEA	Quantifying Effects of Age and Gender on Vocal Fold Vibration by Using High-Speed Digital Imaging and Phonovibrogram	Louisiana State University And A&M College - Baton Rouge (Department of Communication Sciences and Disorders)	Melda Kunduk		
	New Request		Contain Confidential/Proprietary Information? No	1	53,590
				2	43,174
				3	43,531
				TOTAL	140,295
034 A-09/C/IS	Volumetric Mapping and Parameterization for Digital Media, Shape Modeling and Scientific Simulation	Louisiana State University And A&M College - Baton Rouge (Department of Electrical & Computer Engineering)	Xin Li		
	New Request		Contain Confidential/Proprietary Information? No	1	43,550
				2	43,516
				3	43,504
				TOTAL	130,570
035 A-09/BS	Genetic Dissection of RNAi-directed Antiviral Immunity in <i>C. elegans</i>	Louisiana State University And A&M College - Baton Rouge (Department of Biological Sciences)	Rui Lu		
	New Request		Contain Confidential/Proprietary Information? No	1	49,150
				2	49,240
				3	52,330
				TOTAL	150,720
036 A-09/BS	Screening of Integrin alpha(IIb)beta(3) Inhibitors by SHG	Louisiana State University And A&M College - Baton Rouge (Department of Biological Sciences)	Bing-Hao Luo		
	New Request		Contain Confidential/Proprietary Information? No	1	60,000
				2	60,000
				3	60,000
				TOTAL	180,000

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
037 A-09/CHE	NMR Structural Studies of O-linked B-N-Acetylglucosamine Modified Proteins	Louisiana State University And A&M College - Baton Rouge (Department of Chemistry)	Megan A. Macnaughtan		
	New Request		Contain Confidential/Proprietary Information? No	1	42,429
				2	42,331
				3	42,324
				TOTAL	127,084
038 A-09/ENG B	Multi-Physics Simulation of Resonant Micro- and Nano- Systems	Louisiana State University And A&M College - Baton Rouge (Department of Mechanical Engineering)	Michael James Martin		
	New Request		Contain Confidential/Proprietary Information? No	1	74,063
				2	61,510
				3	62,391
				TOTAL	197,964
039 A-09/ENG B	Impact of Well Integrity on CO2 sequestration	Louisiana State University And A&M College - Baton Rouge (Department of Petroleum Engineering)	Mileva Radonjic		
	New Request		Contain Confidential/Proprietary Information? No	1	98,500
				2	49,969
				3	51,531
				TOTAL	200,000
040 A-09/EAR	Assessment of Sustainable Home Building Technologies	Louisiana State University And A&M College - Baton Rouge (Dept. of Construction Management & Industrial Engr.)	Emerald M. Roider Isabelina Nahmens (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	58,095
				2	44,500
				TOTAL	102,595
041 A-09/ENG B	Katrina/Gustav: Emergency Evacuation Plan and Traffic Control During Disasters	Louisiana State University And A&M College - Baton Rouge (Dept. of Construction Management & Industrial Engr.)	Bhaba R. Sarker Pius E. Egbelu (Co PI/PD) Xiaoyue Jiang (Other Investigators)		
	New Request		Contain Confidential/Proprietary Information? No	1	64,729
				2	66,446
				3	68,243
				TOTAL	199,418
042 A-09/C/IS	Searching Compressed String Collections	Louisiana State University And A&M College - Baton Rouge (Department of Computer Science)	Rahul Shah		
	New Request		Contain Confidential/Proprietary Information? No	1	44,624
				2	46,984
				3	49,466
				TOTAL	141,074

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
043 A-09/BS	Excluding Arsenic From Plants via Modified Phosphate Transporters	Louisiana State University And A&M College - Baton Rouge (Department of Biological Sciences)	Aaron P. Smith		
	New Request		Contain Confidential/Proprietary Information? No	1	64,819
				2	64,426
				3	64,215
				TOTAL	193,460
044 A-09/EAR	Modeling Sediment Transport in Cohesive Environments	Louisiana State University And A&M College - Baton Rouge (Department of Civil and Environmental Engineering)	Heather D. Smith		
	New Request		Contain Confidential/Proprietary Information? No	1	39,280
				2	55,837
				3	55,961
				TOTAL	151,078
045 A-09/ENG B	Nanoscale Plasmonic Devices for Enhancement of Nonlinear Optical Effects and Sensing	Louisiana State University And A&M College - Baton Rouge (Department of Electrical & Computer Engineering)	Georgios Veronis		
	New Request		Contain Confidential/Proprietary Information? No	1	41,156
				2	39,865
				3	39,111
				TOTAL	120,132
046 A-09/ENG B	Nanostructured Materials for Advanced Energy Conversion and Storage Systems	Louisiana State University And A&M College - Baton Rouge (Department of Mechanical Engineering)	Ying Wang		
	New Request		Contain Confidential/Proprietary Information? No	1	52,313
				2	52,129
				3	51,988
				TOTAL	156,430
047 A-09/C/IS	Holistic Machine Learning for Malicious Software Analysis and Identification	Louisiana State University And A&M College - Baton Rouge (Department of Computer Science)	Jian Zhang		
	New Request		Contain Confidential/Proprietary Information? No	1	44,968
				2	45,083
				TOTAL	90,051
048 A-09/HEA	Maximizing Access to Care for HIV (MATCH)	Louisiana State University Health Sciences Center - New Orleans (School of Public Health)	Christine S. Brennan		
	New Request		Contain Confidential/Proprietary Information? No	1	73,345
				2	73,054
				3	53,601
				TOTAL	200,000

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
049 A-09/BS	Unraveling the Induced-Fit Mechanism of Prolyl Peptidases by X-ray Crystal Structure and Biochemical Analyses	Louisiana State University Health Sciences Center - New Orleans (Department of Biochemistry and Molecular Biology)	Thang K. Chiu		
	New Request		Contain Confidential/Proprietary Information? No	1	33,566
				2	82,317
				3	84,117
				TOTAL	200,000
050 A-09/BS	LSU Brain and Behavior Research Program MR Indicators of Neurogenesis and Treatment Response in Depression	Louisiana State University Health Sciences Center - New Orleans (Department of Neurology)	Deidre J. Devier Anne L. Foundas (Co-PI/PD) James Barbee (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	49,825
				2	49,743
				3	49,907
				TOTAL	149,475
051 A-09/HEA	Mechanisms of Cardiac Damage from Inhaled Particulate Matter	Louisiana State University Health Sciences Center - New Orleans (Department of Physiology)	Jason D. Gardner		
	New Request		Contain Confidential/Proprietary Information? No	1	60,000
				2	60,000
				3	60,000
				TOTAL	180,000
052 A-09/BS	The Role of the Ras Homolog Rhes in Dopamine Receptor Signaling	Louisiana State University Health Sciences Center - New Orleans (Neuroscience Center for Excellence)	Laura Harrison		
	New Request		Contain Confidential/Proprietary Information? No	1	40,000
				2	40,000
				TOTAL	80,000
053 A-09/HEA	Chymase: A New Therapeutic Target for Prevention of Diabetic Renal Disease	Louisiana State University Health Sciences Center - New Orleans (Department of Physiology)	Lisa M. Harrison-Bernard		
	New Request		Contain Confidential/Proprietary Information? No	1	65,000
				2	65,000
				3	65,000
				TOTAL	195,000
054 A-09/BS	The Role of a Gain-of-Function Mutant p53 in the Properties of Osteosarcoma Stem Cells	Louisiana State University Health Sciences Center - New Orleans (Department of Genetics)	Tomoo Iwakuma		
	New Request		Contain Confidential/Proprietary Information? No	1	45,000
				2	50,000
				3	47,000
				TOTAL	142,000

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
055 A-09/HEA	Optimizing Cancer Stem Cell Targeted Therapy in ALL	Louisiana State University Health Sciences Center - New Orleans (Department of Medicine)	Tara Lin		
	New Request		Contain Confidential/Proprietary Information? No	1	64,231
				2	56,514
				3	54,813
				TOTAL	175,558
056 A-09/BS	Novel CD146-Downstream Target Genes for Therapy of Breast Cancer	Louisiana State University Health Sciences Center - New Orleans (Department of Pathology)	Allal Ouhtit Matthew HG Raj (Other Investigator) Donald E. Mercante (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	45,389
				2	65,498
				3	58,154
				TOTAL	169,041
057 A-09/HEA	Role of Interleukin-23 in Host Defense Against Pneumocystis Carinii Infection	Louisiana State University Health Sciences Center - New Orleans (Department of Medicine)	Xiaowen Rudner Judd E. Shellito (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	60,000
				2	60,000
				3	60,000
				TOTAL	180,000
058 A-09/BS	Rhythmic Wrinkling and Its Role in the Pathogenesis of Atherosclerosis	Louisiana State University Health Sciences Center - New Orleans (Department of Pathology)	Dana A. Troxclair Arthur W. Zieske (Other Investigator) Beth A. Schmidt (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	50,000
				2	50,000
				3	50,000
				TOTAL	150,000
059 A-09/HEA	<i>Streptococcus Mutans</i> Virulence Modulation	Louisiana State University Health Sciences Center - New Orleans (Department of Oral and Craniofacial Biology)	Ze Zhang Tom Wen		
	New Request		Contain Confidential/Proprietary Information? No	1	51,313
				2	52,852
				3	54,437
				TOTAL	158,602
060 A-09/BS	Critical Genes Involved in Bladder Cancer Progression	Louisiana State University Health Sciences Center - Shreveport (Department of Biochemistry and Molecular Biology)	John L. Clifford Urska Cvek (Co-PI/PD) Marjan Trutschl (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	66,273
				2	56,898
				3	60,025
				TOTAL	183,196

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
061 A-09/BS	Mitochondrial p53 in Lymphoma Treatment	Louisiana State University Health Sciences Center - Shreveport (Department of Pharmacology, Toxicology & Neuroscience)	Yunfeng Zhao J. Michael Mathis (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	64,740
				2	63,640
				3	62,820
				TOTAL	191,200
062 A-09/CHE	Development of Novel Fluorescent Nanosensors for Reactive Oxygen Species Detection in Cells Under Oxidative Stress	Louisiana State University And A&M College - Shreveport (Department of Chemistry and Physics)	Kui Chen Brian A. Salvatore (Other Investigator) Tuan Vo-Dinh (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	40,534
				2	40,034
				3	39,034
				TOTAL	119,602
063 A-09/BS	The Influence of Mangrove Chemistry and Physical Factors on Folivore Feeding Ecology	Louisiana State University And A&M College - Shreveport (Department of Biological Sciences)	Amy Anne Erickson Stephen W. Banks (Consultant) Elahe Mahdavian (Consultant)		
	New Request		Contain Confidential/Proprietary Information? No	1	29,516
				2	18,091
				3	18,091
				TOTAL	65,698
064 A-09/C/IS	The Development of Wireless Sensor Networks Suitable for Monitoring Louisiana Natural Resources	Louisiana State University And A&M College - Shreveport (Department of Computer Science)	Leslie D. Fife		
	New Request		Contain Confidential/Proprietary Information? No	1	30,000
				2	25,000
				3	25,000
				TOTAL	80,000
065 A-09/CHE	Synthesis and Anti-Cancer Activity Studies of <i>Fusarochromanone</i> and Its Novel Analogs	Louisiana State University And A&M College - Shreveport (Department of Chemistry and Physics)	Elahe Mahdavian Brian A. Salvatore (Co-PI/PD) John L. Clifford (Consultant) Christopher G. Kevil (Consultant)		
	New Request		Contain Confidential/Proprietary Information? No	1	47,301
				2	49,301
				3	49,301
				TOTAL	145,903
066 A-09/HEA	Acceptance of Noise in Children with Normal and Impaired Hearing	Louisiana Tech University (Department of Speech)	Melinda Freyaldenhoven Bryan		
	New Request		Contain Confidential/Proprietary Information? No	1	34,194
				2	32,799
				TOTAL	66,993

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
067 A-09/ENG B	Microfluidic PCR with Real Time Thermoelectric Detection	Louisiana Tech University (Department of Mechanical Engineering)	Neil D. Crews		
	New Request		Contain Confidential/Proprietary Information? No	1	61,431
				2	55,856
				3	52,719
				TOTAL	170,006
068 A-09/CHE	Development of a Multi-scale Tool to Study Electronic, Geometrical and Conductive Properties of Polymers	Louisiana Tech University (Institute for Micromanufacturing/Physics Program)	Pedro Derosa		
	New Request		Contain Confidential/Proprietary Information? No	1	67,182
				2	53,120
				3	53,576
				TOTAL	173,878
069 A-09/CHE	Electrochemical and Spectroscopic Studies of the Electrodeposition of Refractory Metals in Room Temperature Ionic Liquids	Louisiana Tech University (Department of Chemistry)	Sven Eklund		
	New Request		Contain Confidential/Proprietary Information? No	1	41,344
				2	41,778
				3	41,229
				TOTAL	124,351
070 A-09/ENG B	Early Detection of Subclinical Alzheimer Disease Using 2-D micro-Electrophoresis Chip	Louisiana Tech University (Department of Biomedical Engineering)	June Feng		
	New Request		Contain Confidential/Proprietary Information? No	1	48,240
				2	48,770
				3	48,621
				TOTAL	145,631
071 A-09/ENG B	Metamaterials for Application in STEALTH Technology (MAST)	Louisiana Tech University (Department of Physics & Electrical Engineering)	Dentcho A. Genov		
	New Request		Contain Confidential/Proprietary Information? No	1	49,391
				2	44,344
				3	44,916
				TOTAL	138,651
072 A-09/BS	Development of an Autonomous Replicating Plasmid for <i>Candida albicans</i> and Identifying the Role of Proteins for Regulating I-sorbose Metabolism ...	Louisiana Tech University (School of Biological Sciences)	Patrick Lawrence Hindmarsh		
	New Request		Contain Confidential/Proprietary Information? No	1	46,889
				2	47,624
				3	48,390
				TOTAL	142,903

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
073 A-09/C/IS	Reliability Modeling for Large Scale Systems	Louisiana Tech University (Department of Mathematics and Statistics)	Mihaela Paun Chokchai Leangsuksun (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	39,195
				2	39,062
				3	38,945
				TOTAL	117,202
074 A-09/ENG B	A White-Light Source Operated Polymer-Based Biomolecular Nanophotonic Microsystem	Louisiana Tech University (Institute for Micromanufacturing)	Long Que		
	New Request		Contain Confidential/Proprietary Information? No	1	56,056
				2	53,578
				3	49,122
				TOTAL	158,756
075 A-09/HEA	Novel Methods for Microarray Gene Expression Data Mining for Translational Bioinformatics	Louisiana Tech University (Department of Health Information Management)	Prerna Sethi Walter J. Lukin (Other Investigator) David K. Mills (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	46,002
				2	46,754
				3	49,185
				TOTAL	141,941
076 A-09/BS	The Identification of Biochemical Pathway Molecular Markers and Association with Biological Phenotypes	Louisiana Tech University (School of Biological Sciences)	Jeffry Shultz		
	New Request		Contain Confidential/Proprietary Information? No	1	22,000
				2	22,000
				TOTAL	44,000
077 A-09/ENG B	Continuous Electroporation Microdevices for <i>in vitro</i> Biomolecule Delivery	Louisiana Tech University (Institute for Micromanufacturing)	Shengnian Wang		
	New Request		Contain Confidential/Proprietary Information? No	1	49,516
				2	48,057
				3	48,619
				TOTAL	146,192
078 A-09/ENG B	Establishing Surface Free Energy Method for Predicting Moisture-Induced Damage in Asphalt Pavement	Louisiana Tech University (Department of Civil Engineering)	Nazimuddin M. Wasiuddin Despina Davis (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	69,873
				2	44,888
				3	45,424
				TOTAL	160,185

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
079 A-09/ENG B	Novel Solar Energy Harvesting Using MEMS Devices	Louisiana Tech University (Department of Mechanical Engineering)	Leland Weiss		
	New Request		Contain Confidential/Proprietary Information? No	1	48,616
				2	46,256
				3	46,719
				TOTAL	141,591
080 A-09/BS	Modeling the Ecological and Evolutionary Causes and Consequences of Extinctions	Louisiana Tech University (School of Biological Sciences)	Jeffrey V. Yule		
	New Request		Contain Confidential/Proprietary Information? No	1	49,578
				2	49,578
				3	49,578
				TOTAL	148,734
081 A-09/EAR	Scaling Sediment and Hydrodynamic Relationships in Rivers and Wetlands: Implications for Coastal Restoration	Louisiana Universities Marine Consortium (LUMCON); University of New Orleans (Department of Earth & Environmental Sciences)	Alexander S. Kolker Denise Reed (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	97,005
				2	56,385
				3	46,525
				TOTAL	199,915
082 A-09/EAR	Examination of Seasonal Shifts in Phytoplankton Community Composition and Consequent Nutritive Value for Louisiana Oysters	Louisiana Universities Marine Consortium (LUMCON)	Geoffrey A. Sinclair Nancy Rabalais (Other Investigator) Brian J. Roberts (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	72,928
				2	75,465
				3	51,270
				TOTAL	199,663
083 A-09/CHE	Probing the Role of Structure and Chemical Content on the Water Uptake Processes of Chemically Mixed, Atmospherically Relevant Aerosolized Nanoparticles	Loyola University New Orleans (Department of Chemistry)	Joelle S. Underwood		
	New Request		Contain Confidential/Proprietary Information? No	1	44,890
				2	43,175
				3	30,193
				TOTAL	118,258
084 A-09/C/IS	Underwater Wireless Sensor Network Simulator	McNeese State University (Department of Mathematics, Computer Science, and Statistics)	Paul A. Bender		
	New Request		Contain Confidential/Proprietary Information? No	1	38,791
				2	39,658
				3	40,560
				TOTAL	119,009

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
085 A-09/C/IS	Obtaining Information from Access Logs By Applying Windowing Algorithm	McNeese State University (Department of Mathematics, Computer Science, and Statistics)	Kay Kussmann Vijay Raghavan (Other Investigator) Elizabeth Diaz (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	39,766
				2	44,866
				TOTAL	84,632
086 A-09/CHE	Computer Simulation of Laser Desorption and Ionization of Biological Molecules with Water Matrix	Nicholls State University (Department of Physical Science)	Yusheng Dou Glenn V. Lo (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	69,395
				2	56,483
				3	59,985
				TOTAL	185,863
087 A-09/CHE	Probing the Effects of Organic Solvents on Fluorophore Fluorescence and DNA Structural Properties	Nicholls State University (Department of Physical Sciences)	April L. Dupre		
	New Request		Contain Confidential/Proprietary Information? No	1	28,875
				2	39,474
				3	38,381
				TOTAL	106,730
088 A-09/BS	Reproductive Behavior and Population Dynamics of King Rails	Nicholls State University (Department of Biological Sciences)	Aaron R. Pierce John Doucet (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	45,410
				2	44,210
				3	14,550
				TOTAL	104,170
089 A-09/EAR	Mapping of Biotic Resources in Coastal Louisiana Ecosystem Using Unmanned Aerial System (UAS)	Nicholls State University (Department of Applied Sciences)	Balaji Ramachandran		
	New Request		Contain Confidential/Proprietary Information? No	1	55,459
				2	52,959
				3	52,959
				TOTAL	161,377
090 A-09/C/IS	Enhancing Object Type Systems by Algebraic Graph Transformations	Nicholls State University (Department of Mathematics and Computer Science, and Statistics)	Cong-Cong Xing		
	New Request		Contain Confidential/Proprietary Information? No	1	40,244
				2	40,244
				3	40,244
				TOTAL	120,732

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
091 A-09/BS	Factors Affecting Cannibalism in Larviculture of Alligator Gar <i>Atractosteus spatula</i>	Northwestern State University (Department of Biology)	Juliette Delabbio		
	New Request		Contain Confidential/Proprietary Information? No	1	45,494
				2	26,256
				3	26,856
				TOTAL	98,606
092 A-09/HEA	First Aid Farm Quest Adventure Game: Emergency Preparedness and Risk Reduction Among Migrant Farm Youth	Southeastern Louisiana University (School of Nursing)	Ann K. Carruth Susan Pryor (Other Investigator) Linda Synovitz (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	66,884
				2	55,431
				3	56,270
				TOTAL	178,585
093 A-09/EAR	Novel Remediation of Hazardous Lead by Nanostructured Trap and Field Monitoring of Toxic Metals by a Portable XRF	Southeastern Louisiana University (Department of Chemistry & Physics)	Ju Chou		
	New Request		Contain Confidential/Proprietary Information? No	1	51,248
				2	34,311
				3	34,746
				TOTAL	120,305
094 A-09/C/IS	Extracting Implicit Information from Text	Southeastern Louisiana University (Department of Computer Science and Industrial Technology)	Aron Culotta		
	New Request		Contain Confidential/Proprietary Information? No	1	30,100
				2	31,205
				3	32,365
				TOTAL	93,670
095 A-09/CHE	Rational Design and Practical Synthesis of Xanthenes and Structurally Related Compounds (Thioxanthenes and Acridones) for their Antimalarial Activity	Southeastern Louisiana University (Department of Chemistry & Physics)	Jean Fotie Dennis E. Kyle (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	44,180
				2	51,579
				TOTAL	95,759
096 A-09/HEA	Simple Moderate Activity, Recreation, and Technology to Manage Obesity with a Video Environment	Southeastern Louisiana University (Department of Kinesiology and Health Studies)	Daniel B. Hollander Joseph Burns (Other Investigator); Robert Kraemer (Other Investigator); V. Daniel Castracane (Other Investigator); Allan		
	New Request		Contain Confidential/Proprietary Information? No	1	51,089
				2	42,575
				TOTAL	93,664

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
097 A-09/ENG B	Formation Control of a Group of Mobile Robots	Southeastern Louisiana University (Department of Computer Science and Industrial Technology)	Ho-Hoon Lee Shunmugham R. Pandian (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	56,026
				2	54,579
				TOTAL	110,605
098 A-09/CHE	A New Method for Preparation of P-chiral Phosphorus Compounds and Their Application in Asymmetric Catalysis	Southeastern Louisiana University (Department of Chemistry & Physics)	Yingchun Li		
	New Request		Contain Confidential/Proprietary Information? No	1	40,296
				2	32,544
				3	34,076
				TOTAL	106,916
099 A-09/CHE	Sonochemical Synthesis of New Carbon Nanostructured Materials for Hydrogen Economy	Southeastern Louisiana University (Department of Chemistry & Physics)	Zhengrong Li		
	New Request		Contain Confidential/Proprietary Information? No	1	38,998
				2	37,623
				3	37,621
				TOTAL	114,242
100 A-09/ENG B	Application of Interferometric 'Bright-Spot' Method to Full Field Stress Analysis of Structural Systems	Southeastern Louisiana University (Department of Computer Science and Industrial Technology)	Junkun Ma Sanichiro Yoshida (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	66,818
				2	56,464
				3	57,180
				TOTAL	180,462
101 A-09/ENG B	Solidification Processing, Heat Transfer Phenomena, and Material Properties Characterization in Continuous Strip Casting of Ferrous and Non-Ferrous Alloys	Southeastern Louisiana University (Department of Computer Science and Industrial Technology)	Rana Mitra Roy J. Issa (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	81,377
				2	41,202
				3	42,328
				TOTAL	164,907
102 A-09/HEA	Acute Effects of Exercise Intensity Upon Energy Expenditure, Hormonal Profiles and Musculoskeletal Fitness in Sedentary Females	Southeastern Louisiana University (Department of Kinesiology and Health Studies)	Bovorn Sirikul Robert R. Kraemer (Co-PI/PD) Daniel B. Hollander (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	93,156
				2	64,984
				3	41,860
				TOTAL	200,000

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
103 A-09/CHE	Electron-induced Bond Cleavage: Towards Simulations of p-stacked nucleotides	Southeastern Louisiana University (Department of Chemistry & Physics)	Thomas Sommerfeld		
	New Request		Contain Confidential/Proprietary Information? No	1	22,790
				2	22,129
				3	29,011
				TOTAL	73,930
104 A-09/EAR	Understanding Hypoxic Zones and Their Effect on Blue Crab in Brackish Estuaries	Southeastern Louisiana University (Department of Chemistry & Physics)	Phillip D. Voegel		
	New Request		Contain Confidential/Proprietary Information? No	1	40,683
				2	37,856
				TOTAL	78,539
105 A-09/BS	Microbial Diversity of Cadaver Decomposition Islands	Southeastern Louisiana University (Department of Biological Sciences)	Erin Jean Watson Gary T. Howard (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	56,191
				2	53,610
				3	53,391
				TOTAL	163,192
106 A-09/ENG B	Damage Accumulation Modeling and Durability Uncertainty Analysis of Aging Materials	Southern University and A&M College - Baton Rouge (Department of Mechanical Engineering)	Ghanashyam Joshi		
	New Request		Contain Confidential/Proprietary Information? No	1	70,000
				2	70,000
				3	60,000
				TOTAL	200,000
107 A-09/ENG B	Advanced Engineering Applications of Signal and Image Processing with Information Measuring	Southern University and A&M College - Baton Rouge (Department of Electrical Engineering)	Zhengmao Ye		
	New Request		Contain Confidential/Proprietary Information? No	1	45,000
				2	45,000
				3	45,000
				TOTAL	135,000
108 A-09/BS	Genes Regulating Cardiomyoblast Proliferation	Tulane University (Department of Cell and Molecular Biology)	Peter Cserjesi		
	New Request		Contain Confidential/Proprietary Information? No	1	40,134
				2	40,436
				TOTAL	80,570

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
109 A-09/CHE	Electrocatalytic Reduction of Carbon Dioxide to CO with Low-Valent Tungsten Complexes; Synthesis of an Analogue of the Mo-S-Cu Co Dehydrogenase Active	Tulane University (Department of Chemistry)	James P. Donahue		
	New Request		Contain Confidential/Proprietary Information? No	1	64,192
				2	37,826
				3	37,986
				TOTAL	140,004
110 A-09/EAR	Quantifying the Influence of Climate on Fluvial Bedrock Incision Processes: An Experimental Study on the Big Island of Hawaii	Tulane University (Department of Earth & Environmental Sciences)	Nicole Gasparini		
	New Request		Contain Confidential/Proprietary Information? No	1	61,683
				2	45,724
				3	48,295
				TOTAL	155,702
111 A-09/BS	Aging and Cognitive Control: Cortical Network Activity and Transcranial DC Stimulation Intervention	Tulane University (Department of Psychology)	Edward Golob		
	New Request		Contain Confidential/Proprietary Information? No	1	49,786
				2	40,863
				3	37,718
				TOTAL	128,367
112 A-09/BS	Regulation of Cortical Development by the NR2B Subunit of the NMDA Receptor	Tulane University (Department of Cell and Molecular Biology)	Benjamin Hall		
	New Request		Contain Confidential/Proprietary Information? No	1	58,123
				2	53,463
				3	50,064
				TOTAL	161,650
113 A-09/ENG B	ATP and IP3 Mediating Intercellular Calcium Waves in Osteocytes	Tulane University (Department of Biomedical Engineering)	Yuefeng Han Michael J. Moore (Other Investigator) Donald P. Gaver (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	65,708
				2	63,231
				3	61,769
				TOTAL	190,708
114 A-09/CHE	DNA-Small Molecule Chimeras: Stimuli Responsive Protein-Binding Agents	Tulane University (Department of Chemistry)	Janarathanan Jayawickramarajah		
	New Request		Contain Confidential/Proprietary Information? No	1	53,454
				2	44,934
				3	36,420
				TOTAL	134,808

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
115 A-09/ENG B	Biomechanics-of Leukocyte Rolling: Computational and in vitro Studies	Tulane University (Department of Biomedical Engineering)	Damir B. Khismatullin		
	New Request		Contain Confidential/Proprietary Information? No	1	52,206
				2	52,594
				3	52,994
				TOTAL	157,794
116 A-09/ENG B	Magneto-electric Couplings in Multiferroic Thin Films for Materials Applications	Tulane University (Department of Physics and Engineering Physics)	Dae Ho Kim		
	New Request		Contain Confidential/Proprietary Information? No	1	60,339
				2	62,601
				3	63,553
				TOTAL	186,493
117 A-09/BS	Role of Epidermal Growth Factor Receptor Tyrosine Kinase in Coronary Arteriolar Dysfunction in Type 2 Diabetes	Tulane University (Department of Physiology)	Khalid Matrougui Zakaria Abd Elmageed (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	66,500
				2	66,500
				3	66,500
				TOTAL	199,500
118 A-09/ENG B	Engineered Tissue Culture Micro-Environments for Studies in Axon Regeneration	Tulane University (Department of Biomedical Engineering)	Michael J. Moore		
	New Request		Contain Confidential/Proprietary Information? No	1	56,764
				2	51,276
				3	51,636
				TOTAL	159,676
119 A-09/ENG B	Identification of Lymphatic Vessel Structure and Function in Adult Microvascular Networks	Tulane University (Department of Biomedical Engineering)	Walter Lee Murfee III L. Gabriel Navar (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	54,418
				2	54,768
				3	55,129
				TOTAL	164,315
120 A-09/ENG B	The Use of Shape Directing Agents in the Synthesis of Anisotropic Nanoparticles on Electrodes	Tulane University (Department of Chemical and Biomolecular Engineering)	Noshir S. Pesika		
	New Request		Contain Confidential/Proprietary Information? No	1	64,041
				2	64,373
				3	64,713
				TOTAL	193,127

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
121 A-09/EAR	Determining the Distribution of Ages in Sedimentary Organic Material Carried and Deposited by Mississippi River	Tulane University (Department of Earth and Environmental Science)	Brad E. Rosenheim		
	New Request		Contain Confidential/Proprietary Information? No	1	70,119
				2	58,711
				3	61,250
				TOTAL	190,080
122 A-09/BS	Visual Signal Processing in Light Adapted Retina	Tulane University (Department of Structural and Cellular Biology)	Guoyong Wang		
	New Request		Contain Confidential/Proprietary Information? No	1	65,000
				2	65,000
				3	65,000
				TOTAL	195,000
123 A-09/HEA	Adult Stem Cell-Based Therapies for Abdominal Wall Wound Regeneration in Contaminated and Clean Surgical Fields	Tulane University Health Sciences Center (Department of Surgery)	Charles Bellows Donald Phinney (Co-PI/PD) Lisa A. Morici (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	48,969
				2	49,943
				3	50,943
				TOTAL	149,855
124 A-09/BS	<i>Burkholderia</i> -induced Signal Transduction in Lung Alveolar Epithelial Cells	Tulane University Health Sciences Center (Department of Microbiology and Immunology)	Kerstin Honer zu Bentrup Lisa A. Morici (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	66,011
				2	66,658
				3	67,321
				TOTAL	199,990
125 A-09/BS	Role of Autophagy in Nutrient Deprived Stromal Cells of Primary Breast Tumors	Tulane University Health Sciences Center (Department of Pharmacology)	Radhika Pochampally		
	New Request		Contain Confidential/Proprietary Information? No	1	45,687
				2	46,431
				3	53,197
				TOTAL	145,315
126 A-09/EAR	Growth Kinetics and Light Dynamics in Multi-species Micro-algal Cultures Raised on Eutrophic Waters from the Northern Gulf of Mexico	University of Louisiana at Lafayette (Department of Renewable Resources and Environmental Science)	Barbara C. Benson		
	New Request		Contain Confidential/Proprietary Information? No	1	45,648
				2	41,435
				3	42,000
				TOTAL	129,083

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
127 A-09/ENG B	Novel Methods for the Determination of Transient Thermal Properties in Reactive Composite Systems	University of Louisiana at Lafayette (Department of Chemical Engineering)	William M. Chirdon		
	New Request		Contain Confidential/Proprietary Information? No	1	46,474
				2	40,095
				3	41,064
				TOTAL	127,633
128 A-09/ENG B	Interactive Virtual Reality Simulation for Nonoparticle Manipulation and Nano-assembly	University of Louisiana at Lafayette (Department of Mechanical Engineering)	Suren N. Dwivedi		
	New Request		Contain Confidential/Proprietary Information? No	1	69,317
				2	66,064
				3	59,126
				TOTAL	194,507
129 A-09/ENG B	Micro Hydroforming Stainless Steel Sheet for Improving Manufacturing PEM Fuel Cells	University of Louisiana at Lafayette (Department of Mechanical Engineering)	William J. Emblom		
	New Request		Contain Confidential/Proprietary Information? No	1	96,653
				2	30,653
				3	24,773
				TOTAL	152,079
130 A-09/ENG B	Developing Advanced Fault Tolerant Control Technology for the Smarter and Autonomous Passenger Vehicles	University of Louisiana at Lafayette (Department of Electrical and Computer Engineering)	Afef Fekih		
	New Request		Contain Confidential/Proprietary Information? No	1	51,325
				2	48,145
				3	48,740
				TOTAL	148,210
131 A-09/ENG B	Development and Evaluation of a Novel Ordered Mesoporous Carbon for Space Missions and International Space Stations Water Recovery Systems (WRS)	University of Louisiana at Lafayette (Department of Civil Engineering)	Daniel Dianchen Gang		
	New Request		Contain Confidential/Proprietary Information? No	1	54,525
				2	51,170
				3	48,472
				TOTAL	154,167
132 A-09/C/IS	Information Systems in Reverse Logistics	University of Louisiana at Lafayette (Department of Business System Analysis and Technology)	Hsiu-Yueh (Sonya) Hsu Zhiwei Zhu (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	74,858
				2	70,484
				TOTAL	145,342

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
133 A-09/C/IS	Geometric Structures and Their Applications	University of Louisiana at Lafayette (The Center for Advanced Computer Studies)	Miao Jin		
	New Request		Contain Confidential/Proprietary Information? No	1	38,410
				2	53,950
				3	54,855
				TOTAL	147,215
134 A-09/BS	Invasion Patterns of the Grass, <i>Phragmites australis</i> , in Native Coastal Marshes of Louisiana	University of Louisiana at Lafayette (Department of Biology)	Derek M. Johnson		
	New Request		Contain Confidential/Proprietary Information? No	1	52,914
				2	43,353
				3	41,413
				TOTAL	137,680
135 A-09/ENG B	Process Development of Fiber Reinforced High Temperature Polymer NanoComposites	University of Louisiana at Lafayette (Department of Industrial Technology)	Ahmed Khattab		
	New Request		Contain Confidential/Proprietary Information? No	1	72,274
				2	70,463
				3	39,979
				TOTAL	182,716
136 A-09/C/IS	Design and Development of Coordination and Control Mechanisms for Sensor-enabled Software Systems	University of Louisiana at Lafayette (Department of Computer Science)	Ashok Kumar		
	New Request		Contain Confidential/Proprietary Information? No	1	41,308
				2	41,800
				3	42,311
				TOTAL	125,419
137 A-09/BS	Reservoirs and Population Dynamics of Free Living <i>Symbiodinium</i> in the Reef Environment	University of Louisiana at Lafayette (Department of Biology)	Mauricio Rodriguez-Lanetty		
	New Request		Contain Confidential/Proprietary Information? No	1	66,643
				2	66,143
				3	66,143
				TOTAL	198,929
138 A-09/CHE	Total Synthesis of Bioactive Natural Products	University of Louisiana at Lafayette (Department of Chemistry)	Michael Hubert Silveira		
	New Request		Contain Confidential/Proprietary Information? No	1	34,789
				2	29,794
				3	24,998
				TOTAL	89,581

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
139 A-09/CHE	The Development of Ruthenium Complexes as Potential Chemotherapeutic Agent	University of Louisiana at Lafayette (Department of Chemistry)	Radhey S. Srivastava Wu Xu (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	70,073
				2	55,795
				3	56,685
				TOTAL	182,553
140 A-09/C/IS	Innovation in Wireless Telecomm Service	University of Louisiana at Lafayette (Department of Marketing and Hospitality)	Ramendra Thakur Hsiu-Yueh (Sonya) Hsu (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	65,206
				2	61,005
				TOTAL	126,211
141 A-09/C/IS	Towards a Computational Account of Cognitive Process Distribution Between Humans and Computers	University of Louisiana at Lafayette (Department of Computer Science)	Andrew Walenstein		
	New Request		Contain Confidential/Proprietary Information? No	1	52,691
				2	54,799
				3	44,186
				TOTAL	151,676
142 A-09/EAR	Coupling Biogeochemical and Hydrodynamic Models for Effective Coastal Ecosystem Restoration Through Stress-response Simulations in the Louisiana ...	University of Louisiana at Lafayette (Department of Civil Engineering)	Hongqing Wang Ehab A. Meselhe (Co-PI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	48,129
				2	47,929
				3	38,929
				TOTAL	134,987
143 A-09/CHE	Function of A Hypothetical Protein Slr0110 of <i>Synechocystis</i> sp. PCC 6803 in Light and Glucose-induced Signal Transduction	University of Louisiana at Lafayette (Department of Chemistry)	Wu Xu		
	New Request		Contain Confidential/Proprietary Information? No	1	53,294
				2	48,801
				3	50,381
				TOTAL	152,476
144 A-09/BS	The Environmentally Benign Synthesis, Modification and Biological Evaluation of Complex Glycolipids from Renewable Agro-based Resources as Potential Anti-	University of Louisiana at Monroe (Department of Chemistry)	Jason A. Carr		
	New Request		Contain Confidential/Proprietary Information? No	1	70,148
				2	34,906
				3	29,906
				TOTAL	134,960

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
145 A-09/EAR	Effect of Industrial and Domestic Wastewaters on Endocrine Disruption During Vertebrate Development	University of Louisiana at Monroe (Department of Basic Pharmaceutical Sciences)	Shao-chung Hsia Kevin Baer (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	31,669
				2	31,687
				3	31,365
				TOTAL	94,721
146 A-09/HEA	Development and Characterization of Controlled Systems of Therapeutic Protein Drugs	University of Louisiana at Monroe (Department of Basic Pharmaceutical Sciences)	Alamdard Hussain		
	New Request		Contain Confidential/Proprietary Information? No	1	37,097
				2	30,267
				3	29,686
				TOTAL	97,050
147 A-09/HEA	Amyloid Beta Faulty Clearance and Alzheimer's Disease	University of Louisiana at Monroe (Department of Basic Pharmaceutical Sciences)	Amal Khalil Kaddoumi Karen Briski (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	53,250
				2	36,250
				3	36,250
				TOTAL	125,750
148 A-09/BS	Modulation of Oligonucleotide Using Nanoparticle Against Drug Resistance to Improve Cancer Chemotherapy	University of Louisiana at Monroe (Department of Basic Pharmaceutical Sciences)	Yong-Yu Liu Sami Nazzal (Co-PI/PD) Paul W. Sylvester (Other Investigator) Girish V. Shah (Other Investigator)		
	New Request		Contain Confidential/Proprietary Information? No	1	60,000
				2	60,000
				TOTAL	120,000
149 A-09/BS	Role of CD2 Peptides in Immunomodulation	University of Louisiana at Monroe (Department of Basic Pharmaceutical Sciences)	Seetharama D. Satyanarayanajois		
	New Request		Contain Confidential/Proprietary Information? No	1	47,500
				2	47,500
				3	40,500
				TOTAL	135,500
150 A-09/BS	Towards a Comprehensive -multigene Phylogeny of Valerianaceae (Dipsacales)	University of New Orleans (Department of Biological Sciences)	Charles D. Bell		
	New Request		Contain Confidential/Proprietary Information? No	1	62,916
				2	65,117
				3	52,355
				TOTAL	180,388

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
151 A-09/C/IS	Wither Whited Sepulchers	University of New Orleans (Department of Computer Science)	Daniel Bilar		
	New Request		Contain Confidential/Proprietary Information? No	1	40,528
				2	41,768
				3	43,915
				TOTAL	126,211
152 A-09/C/IS	Performance Modeling and Prediction of Distributed Sensing and Data Fusion Algorithms	University of New Orleans (Department of Electrical Engineering)	Huimin Chen		
	New Request		Contain Confidential/Proprietary Information? No	1	38,474
				2	38,984
				3	40,010
				TOTAL	117,468
153 A-09/C/IS	High Performance Parallel & Distributed Algorithms for Nonlinear Particle Filtering	University of New Orleans (Department of Electrical Engineering)	Vesselin P. Jilkov		
	New Request		Contain Confidential/Proprietary Information? No	1	39,281
				2	39,375
				3	39,469
				TOTAL	118,125
154 A-09/BS	Sexual Selection and Whole-organism Performance in Dung Beetles: An Integrative Approach to Understanding Genetic Quality	University of New Orleans (Department of Biological Sciences)	Simon P. Lailvaux		
	New Request		Contain Confidential/Proprietary Information? No	1	81,116
				2	81,863
				3	37,021
				TOTAL	200,000
155 A-09/EAR	Developing a Tool to Enhance Detection and Spatio-temporal Monitoring of Cyanobacterial Harmful Algal Bloom in Louisiana Estuarine Environments	University of New Orleans (Department of Earth and Environmental Sciences)	Deepak R. Mishra		
	New Request		Contain Confidential/Proprietary Information? No	1	44,584
				2	44,964
				3	45,359
				TOTAL	134,907
156 A-09/CHE	A New Informatics Paradigm for Reconstructing Signaling Pathways in Cancer Cells	University of New Orleans (Department of Chemistry)	David L. Mobley		
	New Request		Contain Confidential/Proprietary Information? No	1	62,294
				2	66,048
				3	71,259
				TOTAL	199,601

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
157 A-09/CHE	Quaternary Transition Metal Chalcogenides Magnetic Semiconductors for Spintronics	University of New Orleans (Department of Chemistry)	Pierre Ferdinand Poudeu Poudeu		
	New Request		Contain Confidential/Proprietary Information? No	1	64,516
				2	60,111
				3	64,740
				TOTAL	189,367
158 A-09/C/IS	Integrated Real-Time Framework for Heterogeneous Many-Core Embedded Systems	University of New Orleans (Department of Electrical Engineering)	Meikang Qiu		
	New Request		Contain Confidential/Proprietary Information? No	1	38,400
				2	38,509
				3	38,617
				TOTAL	115,526
159 A-09/CHE	Design of A Potent and Selective Small Molecule Kv1.5 Blocker as Potential Therapeutic for Treating Atrial Fibrillation	University of New Orleans (Department of Chemistry)	Ananthakrishnan Sankaranarayanan		
	New Request		Contain Confidential/Proprietary Information? No	1	49,750
				2	54,916
				3	54,847
				TOTAL	159,513
160 A-09/HEA	Differential Effects of Morphine on Cognitive Performance in Rats With and Without Chronic Inflammatory Injury	University of New Orleans (Department of Psychology)	R. Denis Soignier		
	New Request		Contain Confidential/Proprietary Information? No	1	50,598
				2	54,130
				TOTAL	104,728
161 A-09/BS	Regulation of DNA Methylation and Demethylation in <i>Arabidopsis</i>	University of New Orleans (Department of Biological Sciences)	Vaniyambadi V. Sridhar		
	New Request		Contain Confidential/Proprietary Information? No	1	54,746
				2	55,287
				3	54,605
				TOTAL	164,638
162 A-09/BS	Computational and Biophysical Characterization of STAT Homo- and Heterodimers	University of New Orleans (Department of Computer Science)	Christopher M. Summa		
	New Request		Contain Confidential/Proprietary Information? No	1	47,534
				2	47,648
				3	47,762
				TOTAL	142,944

Proposal #	Title	Institution/Department	Principal Investigator	Duration (Yrs)	BoRSF Money Requested
163 A-09/C/IS	Mapping Algorithms for New High-throughput Sequencing Technologies	University of New Orleans (Department of Computer Science)	Christopher M. Taylor		
	New Request		Contain Confidential/Proprietary Information? No	1	42,034
				2	42,148
				3	42,261
				TOTAL	126,443
164 A-09/C/IS	A New Informatics Paradigm for Reconstructing Signaling Pathways in Cancer Cells	University of New Orleans (Department of Computer Science)	Dongxiao Zhu Oliver Sartov (CoPI/PD)		
	New Request		Contain Confidential/Proprietary Information? No	1	50,284
				2	51,639
				3	53,036
				TOTAL	154,959

Total No. of Proposals Submitted - 164

Total First-Year Funds Requested \$8,982,693

Total Funds Requested \$23,862,553

Total First- Year Funds Available \$