

Report to the Louisiana Board of Regents
Review of Research Proposals Submitted for Funding Consideration
in the Board of Regents Support Fund R & D Program
Industrial Ties Research Subprogram

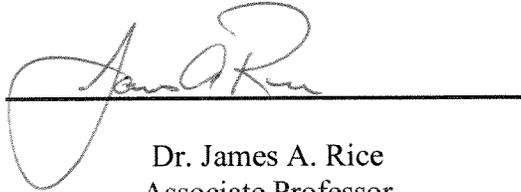
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REPORT OF THE FINAL PANEL
BOARD OF REGENTS SUPPORT FUND
INDUSTRIAL TIES RESEARCH SUBPROGRAM
FY 2013-14

BACKGROUND INFORMATION

Thirty-five research proposals requesting a total of \$2,689,640 for the first year of work were submitted for funding consideration during fiscal year (FY) 2013-14 in the Industrial Ties Research Subprogram (ITRS) component of the Board of Regents Support Fund (BORSF). Of the thirty-five proposals submitted, three contained information of a confidential or proprietary nature. A three-phase evaluation process conducted exclusively by out-of-state experts was used to review these proposals.

REVIEW PROCESS

Phase I: In-Depth Mail Review

The thirty-five proposals were reviewed for scientific and technical merit, as well as for their potential to contribute to Louisiana's economic development and diversification, by twelve out-of-state experts. The experts included two reviewers in each of the following six subject areas: agriculture, aquaculture, and animal science; biotechnology and health care; chemical materials and petroleum engineering; computer and information sciences; mechanical and materials engineering; and environmental science & technology and urban design. Each subject-area reviewer independently evaluated and prepared an in-depth evaluation form for each assigned proposal in the subject area.

Phase II: Reviewer Consensus Evaluation

After each reviewer independently assessed each assigned proposal, members of the various subject-area groups communicated with each other to arrive at a consensus ranking of proposals within each subject area. Proposals were placed in one of three categories:

1. Priority One: Highly Meritorious Proposals Recommended for Funding;
2. Priority Two: Meritorious Proposals of a Lower Priority; and
3. Priority Three: Do Not Fund as Submitted.

All evaluation forms from out-of-state experts who participated in Phases I and II of the review process were available for each member of the final panel, along with all proposals submitted. Each member of the final panel read and studied each proposal and each evaluation prior to the final panel's meeting.

Phase III: Final Panel Review

Three out-of-state experts participated in Phase III of the review process and served on the final panel. The panel convened in Baton Rouge on February 20-21, 2014, to discuss Phase I and II subject-area evaluations, prioritize proposals, and develop funding recommendations. The final panel considered each of the thirty-five proposals extensively and based its recommendations on the following criteria:

- A. Scientific and technical merit;
- B. Potential to enhance economic development and/or diversification in Louisiana;
- C. Evidence of private-sector involvement; and
- D. Evidence of innovation and ability to advance Louisiana's scientific, engineering, and/or technological bases.

The panel was informed that a maximum of \$325,000 would be available in first-year funds for new research projects in the ITRS in FY 2013-14, and that money to continue the second and/or third years of multi-year projects recommended for funding would be budgeted separately from this amount. As a result of the final panel's deliberations, five proposals were recommended for funding. These five Priority One proposals are listed in **Appendix A**, immediately following the narrative section of this report. The final rankings and selections for awards were based upon individual ratings of the external reviewers (Phase I), the consensus rankings of the subject-area reviewer groups (Phase II), and the final panel's consensus evaluation (Phase III), taking into account the economic potential of each project.

Four 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**. The applicants whose proposals are listed in Appendix B should closely review the panel's comments. The final panel believes that these investigators should be notified of their good work and encouraged to revise and resubmit their proposals in the future, with the prospect that improvements in proposal content could ultimately lead to an award. These proposals, listed in Appendix B, should not be funded this year. The BORSF would be better served by diverting any available funds not awarded to and/or unclaimed by Priority One projects to other R&D program component(s).

Four other proposals were considered meritorious by both the subject-area reviewers and the final panel, but insufficiently developed in one or more areas to be worthy of funding at this time (Priority Two).

Each of the remaining proposals, although meritorious in some respects, was deemed inconsistent with the goals and purposes of the ITRS and/or seriously deficient in one or more areas (Priority Three). The principal investigators who submitted these proposals are encouraged to submit them to other, more appropriate funding programs or to make significant revisions before considering resubmission to the ITRS.

The panel recommends that the Board of Regents commit funding for each new proposal for a maximum of three years, with renewal in the second and third years made contingent upon satisfactory progress as well as reconfirmation of continued external matching funding. External stipulations and institutional matching requirements applicable in general to the five Priority One proposals are contained in **Appendix C (C.1)**. The specific levels of outside funding required and detailed stipulations or conditions applicable to each proposal are included in the discussion of the five Priority One proposals listed in

Appendix C (C.2). Summary statements have also been provided in **Appendix C** for each meritorious ITRS proposal ranked Priority One by the subject-area panels and considered by the final panel but not recommended for funding **(C.3)**, and Priority Two proposals **(C.4)**. These summaries include the following information for each proposal:

1. Proposal number and title;
2. Strengths and weaknesses of the proposal;
3. Potential economic impact on Louisiana; and
4. Recommended BORSF funding level and funding stipulations, as applicable. (**Note:** This information is provided only for the five proposals recommended for funding and included in Appendix C.2).

A general statement on proposals ranked Priority III by the final panel is included in **Appendix C (C.5)**.

The individuals who participated in Phases I and II of the review process are listed in **Appendix D**.

In-depth mail reviews will be provided as feedback to all applicants in July 2014.

FINAL PANEL RECOMMENDATIONS

To Phase I and Phase II Subject-Area Reviewers:

Reviewers should be commended for their performance in accordance with the guidelines set forth in the FY 2013-14 Request for Proposals.

To the Applicants:

Applicants should be commended for their efforts to obtain industrial support and for proposing research in areas with high economic potential. However, several of the proposals were not supported by strong research plans which included a testable hypothesis. Improving the quality of this section of the ITRS proposal would help ensure that this program contributes to strengthening the academic mission of the supporting university or institution.

Each proposal submitted should include the following information:

1. A one-page summary describing the research in layman's language and assessing its technology transfer potential;
2. An assessment of the supportive scientific and interdisciplinary expertise needed to enhance the potential success of the research, including joint activities with other researchers or research groups at the same or other institutions;

3. A description of industrial participation representing true collaboration, including past, scheduled, and potential contacts and visits to and from industry, as well as scheduled or potential contributions of funds, equipment, and services by industry; and
4. Identification of an existing industry that will utilize project results or of a new industry to be created through the proposed research.

To the Board of Regents: General Recommendations

Over the years there has been a substantial improvement in ITRS applicants obtaining industry and non-academic support as well as development of solid research plans. It is important to encourage these improvements through the following (5) processes:

1. Continue to provide workshops and seminars for faculty on proposal preparation and requirements; development of consortia and cooperative research centers; patent and licensing procedures; and technology transfer to commerce.
2. Ensure that funded projects obtain the required industrial matching support. Principal investigators should be required to document acquisition of the recommended level and types of industrial matching support by June 30, 2014, for the mandated first-year matching commitment; by March 31, 2015, for the required second-year match; and by March 31, 2016, for the required third-year matching commitment. The staff of the Board's Office of Sponsored Programs should further promote recognition around the State that the ITRS not only encourages but requires industrial and/or federal governmental support as a condition for funding. Significant external funding is often necessary to purchase equipment and to fund salaries.
3. Notify applicants that literature reviews, the development of databases, and the drafting of research protocols should take place prior to submission of a proposal. These activities should not be funded by the ITRS.
4. Notify applicants that the industrial support obtained should be incorporated into the budgets of proposals under the appropriate line items.
5. Where appropriate, request applicants to include more detailed information regarding current and potential intellectual property rights related to their proposals.

**APPENDIX A
ITRS PROPOSALS HIGHLY RECOMMENDED FOR FUNDING
(PRIORITY ONE) (5)**

Rank	Proposal No.	Institution	Recommended BORSF 1 st Year Funds	Recommended BORSF 2 nd Year Funds	Recommended BORSF 3 rd Year Funds
1	005B	LSU-AG	\$ 64,000	\$ 57,000	\$ -----
1	032B	ULL	51,364	42,037	42,739
3	033B	UNO	66,000	66,000	66,000
4	025B	ULL	59,000	59,000	59,000
5	012B	LSU-BR	<u>48,000</u>	<u>48,000</u>	<u>48,000</u>
TOTAL			\$ 288,364	\$ 272,037	\$ 215,739

**APPENDIX B*
MERITORIOUS ITRS PROPOSALS RANKED PRIORITY ONE BY THE SUBJECT-AREA PANELS AND
CONSIDERED BY THE FINAL PANEL BUT NOT RECOMMENDED FOR FUNDING (4)**

011B 020B 022B 024B

Note: *The panel's comments on these proposals are provided in **Appendix C.3**. Subject-area panel reviews for each of these proposals will also be provided to the applicant in July 2014.

**APPENDIX C
MERITORIOUS ITRS PROPOSALS OF LOWER PRIORITIES**

PRIORITY TWO* (4)

004B 008B
007B 029B

Note: *These proposals are not listed in rank order of merit and are not recommended for funding as currently submitted. The panel's comments on the proposals ranked Priority Two are provided in **Appendix C.4**. Subject-area panel reviews for each proposal will be provided to the applicant in July 2014.

PRIORITY THREE* (22)

001B	018B
002B	019B
003B	021B
006B	023B
009B	026B
010B	027B
013B	028B
014B	030B
015B	031B
016B	034B
017B	035B

Note: *These proposals are not listed in rank order of merit and are not recommended for funding as currently submitted. The final panel's general comments on the proposals ranked Priority Three are provided in **Appendix C.5**. Subject-area panel reviews for each proposal will be provided to the applicant in July 2014.

APPENDIX C.1

GENERAL EXTERNAL AND INSTITUTIONAL MATCHING REQUIREMENT STIPULATIONS FOR ITRS AWARD RECIPIENTS

External (i.e., industrial or approved governmental) and institutional funding commitments may not be reduced below levels pledged in the original proposal unless reductions are specifically permitted in the funding stipulations for a grant. In some cases, additional external funding over and above that pledged in the proposal (see Appendix C.2) may be required. The types and amounts of additional required funding are specified in the funding stipulations for the affected awards. **Unless otherwise indicated, all awards are contingent upon receipt by the Board no later than June 30, 2014, of updated documentation from the provider(s) of the external match reconfirming provision of the match pledged in the proposal. Furthermore, second-year funding will be contingent upon receipt by the Board no later than March 31, 2015, of updated documentation from the provider(s) of the external match reconfirming provision of the required second-year external match. Third-year funding will be contingent upon receipt by the Board no later than March 31, 2016, of updated documentation from the provider(s) of the external match reconfirming provision of the required third-year external match. Letters (originals) from the private-sector partner or government agency providing the required match must be furnished to the Board on company or agency letterhead and signed by authorized representatives of the companies or agencies by these same dates.**

Although budget requests from the Board of Regents Support Fund have been reduced significantly in some cases, no budget has been reduced to a degree that would impair execution of the proposed research and accomplishment of the project goals. **Therefore, funding for each recommended Priority One project is made contingent upon full and complete execution of the work plan delineated in the proposal.**

APPENDIX C.2
COMMENTS AND FUNDING STIPULATIONS FOR
PROPOSALS HIGHLY RECOMMENDED FOR FUNDING
(PRIORITY ONE)

Proposal 005B

Rank: 1

TITLE: *An Oyster Flavored Powder from Byproducts of the Gulf of Mexico Oyster Industry*

INSTITUTION: Louisiana State University – Agricultural Center

PRINCIPAL INVESTIGATOR: Subramaniam Sathivel, Ph.D.

COMMENTS: In general, oysters are marketed either as raw oysters in shells or as shucked raw oyster meats. Production steps for the meats include: (1) shucking (removal of the meats from the shell); (2) washing the oyster meats; and (3) packaging the meats. During this process, large quantities of oyster liquor containing small pieces of meats (solids) and undersized oysters are discarded. In addition, pieces of meat are also left attached to the shells. Currently, oyster processing waste (OPW) water with liquor, solids and undersized oyster meat is drained and discarded. These processing waste water streams represent a cost since action may be needed to prevent potential environmental problems. Although shrimp and fish-flavored powders are available, there is no high quality oyster-flavored product on the market. The proposed research focuses on development of a high-quality flavored powder derived from OPW from the Gulf of Mexico oyster industry. This product could potentially invigorate the oyster industry with a new revenue stream based on high demand in Asian cuisine, especially from China, Korea, and Japan.

The proposed research is a joint collaboration between Louisiana State University – Agricultural Center, Healthy Plant, LLC, Metairie, LA, and CuliNex, LLC, Seattle, WA. Although the research project has great potential, there is concern regarding competition from the Chinese and Japanese markets. Most certainly, oyster extracts are produced in China, with Ajinomoto having a dominant market share on many Asiatic flavorings. Nonetheless, this is a very interesting and well-thought-out research proposal by a team of highly qualified researchers. The PI should give particular attention to viral and bacterial pathogens which are certainly present and likely concentrated by the spray drying procedure. It is unlikely that spray drying alone will inactivate such pathogens. Additional steps such as heat inactivation may well degrade the flavor or make processing more difficult. Complex microbial/viral testing is likely necessary for the product. Dr. Bankston’s 30 plus years of experience in the areas of heat transfer, thermodynamics and refrigeration will help to answer concerns regarding food product safety. It should be noted that the proposed budget justification lists expendable supplies and equipment in the amount of \$25,000 that include the purchase of pilot equipment parts/accessories (valued at \$5,500 for year one and \$3,000 for year 2) and a computer (valued at \$1,500) for high-speed data analysis and report preparation. It is unclear if this “equipment” requires a minimum 25% cash match based on BoRSF guidelines. ***Therefore, prior to funding the PI must clearly identify equipment purchases, paying particular attention to those items that may require a minimum 25% cash match. In the event it is determined that a minimum 25% cash match is required for the requested equipment, then year one and two annual awards should be revised to reflect this change. A letter of support from the PI’s institution or industrial partner should be provided pledging their commitment to provide an additional 25% cash match for the purchase of equipment.** Secondly, the proposed budget should be revised to provide limited (\$3,000/year) out-of-state travel. Funding is recommended at a level of *\$64,000 for year one, and *\$57,000 for year two. Healthy Plant, LLC’s and CuliNex, LLC’s pledged cash and in-kind support of \$25,000/year will help to insure that project goals and objectives are achieved. The PI is required to maintain support for two graduate research assistants (GRAs) at the level proposed in the original budget for each year of the project.

***As a condition of funding, the types and amounts of the institutional and external matching commitments stated in the proposal should be maintained in full. Funding is contingent upon receipt by the Board no later than June 30, 2014 of updated documentation showing support at the levels indicated in the original proposal and as required in Appendix C.1.**

BUDGET	BORSF	EXTERNAL
1 st Year	*\$64,000	*\$25,000 as specified in the proposal and consultant’s report
2 nd Year	*\$57,000	*\$25,000 as specified in the proposal and consultant’s report

Appendix C.2 (continued)

Proposal 032B**Rank: 1**TITLE: *Reducing Oscillation of Ship-Mounted Cranes Used for ASV Retrieval*

INSTITUTION: University of Louisiana at Lafayette

PRINCIPAL INVESTIGATOR: Joshua Vaughan, Ph.D.

COMMENTS: Cranes are a ubiquitous part of industry throughout the world and have been a primary heavy lifter for centuries. While there have been substantial improvements since the earliest cranes, modern cranes still share one limitation among them: payload oscillation. Payload oscillation reduces efficiency and creates unsafe operating conditions. If external disturbances are introduced, the complexity of controlling crane payload oscillation is further increased. The market for improved crane control in the oil and gas industry and its potential impact on the Louisiana economy are significant. Louisiana is the number one producer of crude oil in the United States and ranks second in refining capacity. Furthermore, automation, including the use of autonomous surface vehicles (ASV), will play an increasingly critical role in the search for offshore oil and monitoring of offshore production. The primary objective of this proposal is the advancement of crane-control techniques to include the reduction of oscillation resulting from large disturbances common to the ship-mounted ASV launch-and-retrieval system, thus enabling safer and more efficient ASV operation. Broader impacts of this work include improvements to many shipboard crane operations, where large-amplitude external disturbances are common, and reduction in health, safety, and environmental (HSE) exposure from cranes mounted on drilling and oil-production platforms, where cranes are used to load and unload equipment and supplies.

The proposal represents a partnership between the Department of Mechanical Engineering at University of Louisiana at Lafayette and C & C Technologies, Lafayette, LA, a leader in the hydrographic surveying industry whose customers include the oil and gas industry, the telecommunications industry, and the U.S. government. The work proposed will utilize a control system that relies on concurrently designed combinations of input shaping, feedback control, and feed forward control. The open-loop input shaper will limit the oscillation that results from the commanded motion of the crane, while the feed forward and feedback controllers will work together to eliminate oscillation that results from disturbances. A significant portion of the work will entail sensing, estimation, and near-term prediction of disturbances common to the ASV retrieval process. Dynamic models that represent ASV and recovery vessels will be developed. In addition, ocean conditions will be modeled using data collected through the course of C & C Technologies operations. Although this work will be challenging, the work plan appears sound and most promising. If successful, the project could have broad application, beyond the oil and gas industry. C & C Technologies' pledged contribution (approximately \$145,000 in-kind) in the form of technical support and provisions for the 2-day use of an ASV is significant and a very necessary component for the project. The PI is a young faculty member trained in dynamics and control of mobile crane systems. Outside of but related to this project are plans by the PI to develop educational activities that utilize the constructed experimental platform in mechanical engineering courses, e.g., Mechanical Vibration and Special Topics – Robotics. It is recommended that the proposed budget be revised to provide support for one GRA (\$12,000) and limited out-of-state travel (\$3,000/year). The need for two GRAs in years two and three was not adequately justified. Funding is recommended at a level of \$51,364 for year one, \$42,037 for year two, and \$42,739 for year three. The PI is required to maintain support for one graduate research assistant (GRA) at the level proposed in the original budget for each year of the project.

As a condition of funding, the types and amounts of the institutional and external matching commitments stated in the proposal should be maintained in full. Funding is contingent upon receipt by the Board no later than June 30, 2014 of updated documentation showing support at the levels indicated in the original proposal and as required in Appendix C.1.

BUDGET	BORSF	EXTERNAL
1 st Year	\$51,364	\$31,943 as specified in the proposal
2 nd Year	\$42,037	\$31,943 as specified in the proposal
3 rd Year	\$42,739	\$81,125 as specified in the proposal

Appendix C.2 (continued)

Proposal 033B**Rank: 3**

TITLE: *Investigating the Mechanisms of Proteases to Develop a Method that Predicts Proteolytic Peptide Stability*

INSTITUTION: University of New Orleans

PRINCIPAL INVESTIGATOR: Dhruva Chakravorty, Ph.D.

COMMENTS: For nearly two decades, peptides have taken a back seat to small molecules in pharmaceutical drug discovery programs. Peptides have been overlooked largely because of the challenges in achieving the pharmacokinetic properties necessary to become a good drug. In particular, peptides are frequently rapidly cleared by the numerous proteases found in the digestive tract, blood stream and the cell, making the challenge of finding orally active and long-lasting peptide drugs extremely difficult. At the same time, the promise of combinatorial chemistry and high throughput screening led most drug discovery groups to completely abandon peptide drug discovery. Unfortunately, this promise has fallen quite short of delivering high-quality starting points for many classes of drug targets, most notably protein-protein interactions. Due to this limitation of small molecules and the relative recent success of monoclonal antibodies, the enthusiasm for peptide-based drug discovery has returned. The enthusiasm for peptide-based drug discovery continues to grow with each report of peptide-based inhibitors of protein-protein interactions once thought to be intractable.

The proposed research is a synergistic collaboration between the PI's research team at the University of New Orleans and CMDBiosciences, New Haven, CT. CMDBiosciences is a computational biotechnology company that specializes in computer-enabled analysis, modeling and design of therapeutic protein-peptides. Currently, existing methods used for peptide cleavage analysis are entirely sequence-based, largely rely on existing substrate information, and are limited to linear sequences of natural amino acids. The emphasis of this proposal is to build on sequence-based methods using available structural information combined with quantum-mechanical molecular-mechanical (QM/MM) and molecular dynamics (MD) computational techniques. This is a highly innovative project. Unlike existing methods, the proposed methodology will study the effects of cyclization and the use of D-amino acids and N-methyl amino acids when predicting proteolytic susceptibility of peptides. The focus of the research matches well with the agenda of the New Orleans Bioinnovation Center and formation of the medical corridor in New Orleans. Preliminary studies will use a suite of proprietary CMDBiosciences products for conformational analysis. For the purpose of this study, the PI will use the AMBER suite of programs for MD and the Gaussian09 electronic structure theory program. The PI suggests the use of extant bioinformatics/sequence-based web-servers for initial culling of potential protease and cleavage sites followed by structural-based tools for evaluating the effects of protease modification. It should be noted that the PI has a pending RCS proposal entitled "Investigating the Function and Signaling Mechanisms of G-Protein Editor Metallochaperones – Determining the MeaB and Vitamin B12 – Dependent Methylmalonyl-CoA Mutase Complex for Biomedical, Green Chemistry and Energy Applications" in the amount of \$186,597 for the period of June 1, 2014 thru May 30, 2017. ***Therefore, prior to funding the PI must provide BoR assurance that the ITRS project does not potentially overlap with the RCS project, if funded. In the event that overlap exists between the two projects, the PI must identify those areas and the ITRS year one, year two, and year three awards should be adjusted to reflect this change.** Secondly, it is recommended that the proposed budget be revised to provide limited out-of-state travel (\$3,000/year) with equipment charges (\$5,000) deleted. Funding is recommended at a level of *\$66,000 for year one, *\$66,000 for year two, and *\$66,000 for year three. The PI is required to maintain support for undergraduate students at the level proposed in the original budget for each year of the project. CMDBiosciences pledged technical support in addition to \$30,000/year cash will help to ensure that project goals are achieved. Dr. David Diller, Director of Computational Chemistry at CMDBiosciences has an extremely strong background in pharmaceutical and biotech organization.

As a condition of funding, the types and amounts of the institutional and external matching commitments stated in the proposal should be maintained in full. Funding is contingent upon receipt by the Board no later than June 30, 2014 of updated documentation showing support at the levels indicated in the original proposal and as required in Appendix C.1.

BUDGET	BORSF	EXTERNAL
1 st Year	*\$66,000	\$30,000 as specified in the proposal
2 nd Year	*\$66,000	\$30,000 as specified in the proposal
3 rd Year	*\$66,000	\$30,000 as specified in the proposal

Appendix C.2 (continued)**Proposal 025B****Rank: 4**

TITLE: *Organic-Inorganic Nanophase Materials for Injection Molding of High Performance Products*

INSTITUTION: University of Louisiana at Lafayette

PRINCIPAL INVESTIGATOR: Devesh Misra, Ph.D.

COMMENTS: Polymers are considered Louisiana's most important contribution to the U.S. economy. It is understood that every hour of every day, a railcar full of polyethylene leaves just one of many polyethylene plants; these shipments account for 40% of beverage containers. There is, however, a large gap between producing raw materials and manufacturing high-value finished products. From a technological perspective, the reinforcement of polymers with nanometer-size constituents will result in a significant enhancement in properties compared to un-reinforced polymers. Despite the promise of utilizing the extraordinary mechanical and electrical properties of carbon nanotubes (CNTs) at small concentrations (0.1 wt. %) in polymers, limited progress has been achieved toward realizing the full potential of CNTs. Possible explanations include: (a) natural tendency of the CNTs to aggregate due to strong inter-tubular interaction; (b) covalent functionalization of CNTs to control dispersion leading to disruption of π -conjugation in CNTs and scattering of electrons from each covalent functionalized site with consequent deterioration in electrical properties; and (c) non-covalent interaction characterized by a weak CNT-polymer interface.

The proposed research is a joint effort between University of Louisiana at Lafayette and Noble Plastics, Lafayette, LA. The objective of the proposed research is to fundamentally understand and elucidate the mechanisms underlying direct and periodic nucleation of polymer crystals on nanostructured carbon (carbon nanotubes) in a pressure-induced crystallization approach with command of the interface between the constituents at the molecular scale. The PI hypothesizes that fostering direct nucleation of polymer crystals along the tube axis of CNTs through a pressure-induced approach enables tuning of hierarchical structure at multi-length scales together with interfacial adhesion coming from electrostatic interaction and van der Waals force. Success of the project has the potential to enable manufacturers and users of polymeric materials in the State to produce competitive high-performance products. This is a well-written proposal by a highly qualified researcher. The PI provides a well-thought-out description of the experiments that support the synthesis work. Industry partner Noble Plastics, Grand Coteau, LA, pledged support (\$30,000/year) to include resin samples, manufacturing testing and data collection, and technical support. The need for a full-time post-doc and a graduate research assistant (GRA) was not adequately justified. Therefore, it is recommended that the proposed budget be revised to provide ½ year of support for the post-doc and limited out-of-state travel (\$3,000/year). Funding is recommended at a level of \$59,000 for year one, \$59,000 for year two, and \$59,000 for year three. The PI is required to maintain support for one graduate research assistant (GRA) at the level proposed in the original budget for each year of the project.

As a condition of funding, the types and amounts of the institutional and external matching commitments stated in the proposal should be maintained in full. Funding is contingent upon receipt by the Board no later than June 30, 2014 of updated documentation showing support at the levels indicated in the original proposal and as required in Appendix C.1.

BUDGET	BORSF	EXTERNAL
1 st Year	\$59,000	\$30,000 as specified in the proposal
2 nd Year	\$59,000	\$30,000 as specified in the proposal
3 rd Year	\$59,000	\$30,000 as specified in the proposal

Appendix C.2 (continued)

Proposal: 012B**Rank: 5**

TITLE: *Bimetallic Systems for Hydroformylation, Aldehyde-Water Shift, and Related Catalysis*

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

PRINCIPAL INVESTIGATOR: George Stanley, Ph.D.

COMMENTS: The petrochemical industry is the 2nd largest industrial employer in the State of Louisiana, has the highest-paying industrial jobs, and produces 25% of all chemicals in the U.S. Every petrochemical plant relies heavily on catalysts to speed up the reactions that produce the chemical products. The development of new and/or improved catalysts can reduce pollution and unwanted side-products, save energy through reduced pressures and temperatures needed for a reaction, improve profits, and possibly lead to new plant constructions and jobs.

The focus of the proposed research is the development of a highly active, selective, and robust bimetallic hydroformylation catalyst based on a new tetraphosphine ligand. The PI's discovery that this dirhodium tetraphosphine hydroformylation catalyst can also catalyze the reaction of aldehydes with water to produce carboxylic acids and H₂ gas (aldehyde-water shift catalysis) is of great interest. More specifically, it has attracted industrial partner Dow Chemicals, Midland, MI, (seven production facilities located in Louisiana) for the production of carboxylic acids for surfactants, detergents, and as monomers for producing polyesters and other specialty polymers in addition to H₂ gas from water, a valuable high-energy product in its own right. This is a well-written proposal that clearly demonstrates fundamental and detailed knowledge of alkene catalytic chemistry. However, success of the research is dependent on the preparation of the Rh catalyst with enhanced properties. Early reporting of the results is strongly encouraged. The PI has an outstanding record of achievement in related research. Dow Chemical's pledged support of \$50,000/year will help to ensure that project goals are achieved. The need for GRA support beyond one graduate research assistantship was not adequately justified. Therefore, it is recommended that the proposed budget be revised to provide one graduate research assistantship (\$24,000/year), limited supplies (\$5,000/year), and out-of state travel (\$3,000/year). Funding is recommended at a level of \$48,000 for year one, \$48,000 for year two, and \$48,000 for year three. Although the PI states "any funds not expended on students paid less than \$24,000 will be transferred to the supply fund category," the PI should be made aware that any rebudgeting of unexpended funds specifically set aside for students requires Board approval. The PI is required to maintain support for one graduate research assistant (GRA) at a level of \$24,000/year for each year of the project.

As a condition of funding, the types and amounts of the institutional and external matching commitments as stated in the proposal should be maintained in full. Funding is contingent upon receipt by the Board no later than June 30, 2014 of updated documentation showing support at the levels indicated in the original proposal and as required in Appendix C.1.

BUDGET	BORSF	EXTERNAL
1 st Year	\$48,000	\$50,000 as specified in the proposal
2 nd Year	\$48,000	\$50,000 as specified in the proposal
3 rd Year	\$48,000	\$50,000 as specified in the proposal

APPENDIX C.3
COMMENTS ON PROPOSALS RANKED PRIORITY I BY THE
SUBJECT-AREA PANEL AND CONSIDERED BY THE FINAL PANEL
BUT NOT RECOMMENDED FOR FUNDING

Proposal 011B

TITLE: *Tuscaloosa Marine Shale Play*

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

PRINCIPAL INVESTIGATOR: Jeffrey Nunn, Ph.D.

COMMENTS: The Tuscaloosa Marine Shale (TMS) formation of Louisiana is an unconventional hydrocarbon play with up to seven billion barrels of reserves. Preliminary work indicates that the TMS should contain liquids rather than gas. This makes the TMS more valuable than the Haynesville play, which has suffered from low natural gas prices. Development of the play depends on early success since production in existing wells is used to finance future exploration and production. Assessing an unconventional play is challenging as many factors influence how much oil and gas can be produced, i.e., total organic carbon, matrix permeability, porosity, brittleness of the rocks and the regional stress field. This assessment requires expertise in geology, geophysics, and petroleum engineering. Moreover, it requires integration among the disciplines as information from one field influences analysis in another.

This is a well-written proposal with clear objectives and a good description of the (3) proposed MS research projects. The work involves cross-discipline training and co-mentoring of graduate students from the Geology and Geophysics and Petroleum Engineering departments at LSU. Specifically, the students will study the petrophysical/source rock aspects of the TMS with regard to natural fractures, assess the effectiveness of hydraulic fracturing treatments, and perform integrated reservoir descriptions and performance modeling. Project (1) consists of analytical simulation via the finite element method, to understand and predict hydraulic fracture efficiency in TMS. This is a valid academic pursuit but it is hard to visualize any of the industrial partners utilizing the results. Large companies, e.g., Exxon, have more sophisticated means of prediction. Projects (2) and (3) are far less developed in their approach to production modeling, petrophysical analysis and natural fracture. There is no quantitative metric for mapping variability across the TMS play. The PI's ongoing collaboration with multiple industry partners has provided well logs, core analysis, production information, pressure data, reservoir/fluid properties and well completion reports that are essential for the project. However, the industry partners provided no stated financial support for the project. The completion of (3) research theses by 2016 does not constitute performance.

Appendix C.3 (continued)

Proposal 020B

TITLE: *Optimization Design of the Wave Suppressor Sediment Collection [WSSC] System through Computational Simulation Study*

INSTITUTION: University of Louisiana at Lafayette

PRINCIPAL INVESTIGATOR: Daniel Gang, Ph.D.

COMMENTS: Land and wetland loss occurs along the edges of wetlands, water courses, and shorelines across coastal Louisiana. Conventional shoreline protective structures are expensive to construct in these environments. Pierce Industries, LLC, Cutoff, LA, recently invented a Wave Suppressor Sediment Collection (WSSC) System that could become a preferred alternative. Primary testing conducted at University of Louisiana at Lafayette under a previous ITRS grant [LEQSF(2011-14)-RD-B-07] has shown extraordinary potential in wave energy reduction and sediment retention. However, the performance of the system is strongly affected by many environmental factors, such as water depth, wave height, sediment concentration, and particle density. The design criteria of the WSSC, such as pipe shape, size, and locations, also govern its performance.

The primary goals of this project are to optimize the design of the WSSC systems for maximum wave reduction and sediment collection via experimental and computational simulation studies. This research is a continuation of work previously funded by the ITRS program. It should be noted that Dr. Gang is the PI of a second ITRS grant entitled "Field Investigation of the Wave Suppressor Sediment Collection (WSSC) System, a Highly Effective System for Shoreline Protection and Sediment Retention" for the period July 1, 2013 thru June 30, 2016. In general, the proposal lacked specificity and the use of previous data for validation. The PI states that this study is necessary to move the WSSC system to a viable commercial product and to accelerate its commercialization. Pierce Industries' pledged support of \$5,000 cash and \$45,000 in-kind for the duration of the project combined with the PI's failure to submit an SBIR for this work is disappointing. In terms of BoRSF support, the project has been quite successful. It is now time for alternative private-sector funding. The ITRS program does not fund the commercialization of a product—that is the job of the industrial partner.

Appendix C.3 (continued)

Proposal 022B

TITLE: *Improving Productivity of Shale Gas/Oil Wells Using Shockwave Completions*

INSTITUTION: University of Louisiana at Lafayette

PRINCIPAL INVESTIGATOR: Boyun Guo, Ph.D.

COMMENTS: Unconventional uses of shale gas/oil are reviving the oil and natural gas industry in the U.S., boosting regional economies and providing an increasing share of domestically produced oil and gas. The potential impacts of hydraulic fracturing of shale gas/oil wells on the environment and the large volume of water consumed in the fracturing operations have been increasing concerns about the technology. The proposed research will focus on the feasibility of using shockwave fracturing generated by explosives to create fractures rather than hydraulic fracturing in shale gas/oil field development.

The objective of the proposed research is to develop a thorough understanding of the productivity of wells completed with explosive-fracturing in shale gas/oil formations. Currently, shock physics is an area of intense research usually culminating with work in a shock tube. It would be unusual for the transport mechanisms for high-pressurized entrapment to be the same as those for shock-induced transport. The research proposed is an incremental approach towards an understanding of a previously abandoned technique for fracturing. The advent of hydraulic fracturing in the 1950's caused explosive stimulation of petroleum wells to decline dramatically. The many problems associated with explosive blasting, such as safety and the limitations of working in open holes, caused the decline in the use of such technology. The PI proposes detailed computer modeling studies, complete data sets for shale gas formations and a comprehensive computer model to predict the productivity of wells completed with explosive fracturing in shale gas/oil formations. Although the PI has garnered exceptional industry support (\$327,500 in-kind), the PI has no established work in the simulation or shock physics areas. Furthermore, the literature review and/or preliminary research did not demonstrate this was ever done successfully. It should be noted that Dr. Guo is currently the PI of an ITRS grant entitled "Experimental Investigations of Fracture Growth in Unconventional Liquid-Rich Shale Plays" in the amount of \$131,112 for the period of June 1, 2013 thru June 30, 2016.

Appendix C.3 (continued)

Proposal 024B

TITLE: *Exploration of Hydropower Technology in Louisiana by Developing and Assessing a Composite Hydroelectricity Turbine Set*

INSTITUTION: University of Louisiana at Lafayette

PRINCIPAL INVESTIGATOR: Yucheng Liu, Ph.D.

COMMENTS: In the United States, although most energy is produced by fossil-fuel and nuclear power plants, there is still 7% of total power produced by hydroelectric plants. However, most hydroelectricity in the U.S. comes from the potential energy of dammed water driving a water turbine and generator. The power extracted from the water depends on the volume and on the difference in height (head) between the source and the water's outflow. The overall goal of this proposal is to develop a hydroelectricity turbine set using a technology for capturing hydrokinetic energy in rivers or streams without the use of dams. More specifically, the project aims to explore water resources in Louisiana, thus potentially lowering the dependence of Louisiana's economy on oil and gas, and bringing hundreds of new jobs.

The project involves the participation of Enviro-Tech Systems (ETS), Covington, LA, a private-sector company with specialty and experience in hydropower technology and water treatments. The design of a turbine blade capable of generating energy from flowing streams is a seemingly straightforward engineering approach to advancing energy technology. The use of computer-aided design (CAD) for computational fluid dynamics (CFD) modeling, simulation, and design optimization is appropriate. The PI spends a great deal of time stating the obvious utility of hydropower, but does not consider the potential environmental impact on Louisiana's rivers and streams. Clearly, the turbines must capture a significant portion of kinetic energy and flow of the stream, affecting downstream and the stream's ecology—to say nothing of direct damage to aquatic life caused by turbine blades. The PI lists (10) selected publications from over 120 peer-reviewed publications, however the (5) listed as being "closely related" do not appear related to the proposed work.

APPENDIX C.4**GENERAL STATEMENT ON MERITORIOUS PROPOSALS
NOT RECOMMENDED FOR FUNDING AT THIS TIME
(PRIORITY TWO)**

Proposals included in this category are those applications the panel believes to be meritorious, although of a lower order than those rated Priority One. Individual subject-area commentaries on proposals ranked Priority Two are not included in this report. Proposals so ranked were not recommended for funding.

Proposal 004B

TITLE: *Potential Health Beneficial Food Ingredients in Chlorella Algae Grown in Louisiana in a Photo-Bioreactor*

INSTITUTION: Louisiana State University – Agricultural Center

PRINCIPAL INVESTIGATOR: Joan King, Ph.D.

COMMENTS: There is increased interest in alternative energy sources due to increasing prices and security risks associated with fossil oils. A promising alternative energy source is biofuels made from biomass. Currently, biomass-based fuel production research is mainly focused on oil crops, sugar-based crops and cellulosic materials. Microalgae indicate promise as both a biofuel and bioproduct feedstock. The ultimate goal of this research is to expand the economic potential of the algae products of Greater World Fuels, LLC, a Louisiana-based company. GWF is focused on the growing of Chlorella algae in a closed-loop photo-bioreactor and processing it for biofuel and byproduct production. The company is currently selling a healthy dog treat product made from the algae called “Chlorellies”. GWF is interested in expanding into the food ingredient area and has solicited the Department of Food Science at LSU-Ag for assistance in characterizing the contents of their product.

This project represents an industrial research/consulting services collaboration. The methodologies are clear and the outcome will provide insight, but overall the project lacks innovation. The work proposed represents routine qualitative analysis of an algal product which should be contracted by the company. The PI has no current research support beyond (2) pending proposals submitted to BoRSF programs. It would have been appropriate for the PI to include in the proposal why the current product, “Chlorellies”, is considered healthy.

Appendix C.4 (continued)

Proposal 007B

TITLE: *Cellulose Nanoparticle Reinforced Cements for Oil/Gas Well Casing Applications*

INSTITUTION: Louisiana State University – Agricultural Center

PRINCIPAL INVESTIGATOR: Qinglin Wu, Ph.D.

COMMENTS: Cementing oil and gas wells is about a \$6 billion per year business in the United States alone. Many types of wells, from those deep in the Gulf of Mexico to horizontally drilled natural-gas wells in Pennsylvania, are all cemented. Well cement constitutes an essential barrier from ground water, and support steel casing, and fulfills other essential functions during well completion. One study named cementing as a factor in 18 of 39 well blowouts at Gulf rigs from 1992 to 2006. Another attributed 5 of 9 out-of-control wells in the year 2000 to cementing problems. The Deepwater Horizon incident in the Gulf was attributed to faulty cement work, leading the wall-supporting steel casing to come apart and a spill of almost 15,000 gallons of drilling fluids and millions of gallons of crude oil into the Gulf of Mexico. The performance requirements for cement materials have prompted the search for appropriate fiber reinforcement to improve slurry's tensile strength, impact resistance, and fracture toughness, without decreasing its pumpability.

The proposed research seeks to develop nanocellulose reinforced cement materials for oil/gas casing application. The activities proposed will emphasize cellulose nanoparticle (CNP) manufacturing and characterization, CNP-cement formulation development, strengthening mechanisms, and performance characterization at both laboratory and production scales. The proposed project is novel and builds on the PI's prior work. The procedure for creation of the nanoparticles is well developed but appears extremely expensive and time consuming. A reasonable economic analysis of the costs associated, even if only estimated, should be conducted to justify funding this project. Cement—a simple, low-cost material—will not be utilized if its cost is dramatically altered. The effort to commercialize such a process was not addressed and is likely to be significant as well. The PI has a good record of completing these types of research projects and is well qualified to carry out the proposed work. The PI's past work and BORSF funding have been successful. The need for three years of support for a GRA and a Post-Doc was not adequately justified. The timeline proposed does not appear to be very balanced in terms of workload.

Appendix C.4 (continued)

Proposal 008B

TITLE: *Recycling Concrete with Geopolymer Materials*

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

PRINCIPAL INVESTIGATOR: Steve C.S. Cai, Ph.D.

COMMENTS: Recycling demolished industrial waste such as concrete is a very efficient solution to the threat of environment deterioration we are facing today. The main difference between natural aggregates and recycled concrete aggregates is that the latter always contain attached cement mortar and contaminates, which results in weak interfacial zones between the aggregates and cement for the recycled concrete. This weak interface and the deteriorated quality of recycled aggregates cause certain strength losses when using recycled aggregates in new concrete. The strength losses in recycled aggregate concrete can be compensated for by adding minerals and/or improving the production procedure.

The objective of the proposed research is to explore the feasibility of developing a geopolymer material-based “GeoCement” that will replace the Portland cement. The PI describes checking the inherent strength of composites involved, cracking strain in contact with steel coupons, together with moisture absorption in the final recycled product; however, there is no mention of the fracture toughness properties of the adhesive, nor the mismatch in elastic moduli of the component materials. Examination of these fundamental properties should be of great consideration. The involvement of Changsha University – Science & Technology (Changsha, Hunan, P.R. China) for structural testing was not adequately justified. Clearly, there exist domestic laboratories with similar capabilities. The economic question of how recycling of concrete provides benefits in a manner that justifies the addition of the proposed material should be answered. Industry partner Advanced Cement Technologies, Blaine, WA, pledges in-kind support valued at \$10,000/year. However, increased industrial support or possibly a second industry partner would be advised for this project.

Appendix C.4 (continued)

Proposal 029B

TITLE: *An Integrated Approach to Study Casing while Drilling: Physics and Implementation*

INSTITUTION: University of Louisiana at Lafayette

PRINCIPAL INVESTIGATOR: Saeed Salehi, Ph.D.

COMMENTS: Casing Drilling is one of the efficient technologies to increase the fracture gradient in narrow pore-fracture pressure sedimentary basins and deep offshore applications. Although successful field applications of increasing wellbore integrity have been reported, there are still uncertainties in the mechanisms and how to operationally capture the maximum attainable wellbore pressure. The University of Louisiana at Lafayette and industrial partner Weatherford International (letter of support provided no physical address), one of the leading service companies in using Casing /Liner while drilling, will study several aspects of this technology. The primary goals of this research are to: (1) understand the physical mechanism of casing while drilling (CwD) and its practical implementation; and (2) quantify the plastering effect in CwD and affecting parameters.

Casing drilling is a relatively new concept with the primary benefits being a reduction in drilling time and an increase in wellbore integrity. The claim that casing drilling will increase efficiency requires a true economic analysis. No description of the data obtained from the field to be analyzed was provided. A clear description is needed to help realize the potential of the work. The PI should note that receiving funding for a proposal whose first year of work consists of planning and analysis that should have been completed prior to submission is highly unlikely. It also appears that the research team does not have the modeling and computational background needed to ensure the success of the project.

APPENDIX C.5

GENERAL STATEMENT ON PROPOSALS RANKED PRIORITY THREE BY THE FINAL PANEL

Individual commentaries on proposals ranked Priority Three by the final panel are not included in this report. Proposals so ranked were not recommended for funding for at least two of the following reasons (not listed in order of importance):

- Insufficient or inappropriate industrial matching funds were pledged and/or external support documented in the proposal budget was not substantiated by required letters of industrial support
- The industrial partner'(s) role in the research collaboration was not provided and/or detailed in the proposal
- The proposal did not have clear objectives and/or research plans lacked scientific rigor or completeness
- The background of a principal investigator was inconsistent with the proposed research and/or the principal investigator had an unusually poor publication record in the proposed area of research
- The proposal showed little or no potential for contributing to the near-term development and diversification of Louisiana's economy
- The proposal did not contain evidence of future commercialization, or it was not clear what economic benefit would be gained from the research
- Budgets were excessive, inadequately justified, or inconsistent with provided budget justifications
- The need for consultants and/or subcontracts was not adequately justified
- Equipment requests were excessive and/or inappropriate for the research proposed

APPENDIX D

**LIST OF SUBJECT-AREA REVIEWERS WHO PARTICIPATED
IN PHASES I & II OF THE REVIEW PROCESS**

Agriculture, Aquaculture, and Animal Science

Dr. Duane L. Johnson, Chair
ClearSkies, Inc.

Dr. Brian Scott Baldwin
Department of Plant and Soil Sciences
Mississippi State University

Biotechnology and Health Care

Dr. Radu Marches, Chair
Baylor Institute for Immunology Research

Dr. Leo Herbette
President, Exploria

Chemical Materials and Petroleum Engineering

Dr. Russell D. Ostermann, Chair
Department of Chemical & Petroleum Engineering
University of Kansas

Dr. Roger A. Korus
Department of Chemical Engineering
University of Idaho

Computer and Information Sciences

Dr. John Usher, Chair
Professor, Department of Industrial Engineering
Mississippi State University

Dr. Behrooz A. Shirazi
Director, School of Electrical & Computer Science
Washington State University

Appendix D (continued)

Mechanical and Materials Engineering

Dr. John Berry, Chair

E. P. Coleman Professor, Department of Mechanical Engineering
Mississippi State University

Dr. Mathew Schaefer

Department of Mechanical and Industrial Engineering
Milwaukee School of Engineering

Environmental Science & Technology, and Urban Design

Dr. Trevor H. Boyer, Chair

Department of Environmental Engineering Sciences
University of Florida

Dr. James T. Anderson

Environmental Research Center
West Virginia University

APPENDIX E

**SUMMARY OF PROPOSALS SUBMITTED TO THE
INDUSTRIAL TIES RESEARCH SUBPROGRAM (ITRS)
FY 2013-14**

**Proposals Submitted to the Research and Development Program - ITRS
for the FY 2013-14 Review Cycle**

Proposal #	PI Name	Category	Institution	Proposal Request	Project Title	Amount Requested				Confidential Info
						Year 1	Year 2	Year 3	Total	
001B-14	Dr. Daira Aragon	Scientific	Louisiana State University Agricultural Center	New Request	Maximizing sugar recovery in sugar mills pan floor operations	\$54,500.00	\$44,500.00	\$0.00	\$99,000.00	No
002B-14	Dr. Dorin Boldor	Scientific	Louisiana State University Agricultural Center	New Request	In-situ production of drop-in biofuels from tallow tree seeds using advanced, scalable electromagnetic technologies as a mitigation strategy to control the specie's invasiveness in Louisiana	\$81,670.00	\$79,197.00	\$74,042.00	\$234,909.00	No
003B-14	Dr. Marlene Janes	Scientific	Louisiana State University Agricultural Center	New Request	Microbiological and physicochemical profile of naturally fermented and spoiled Red Hot Chili Mash	\$61,614.00	\$60,614.00	\$60,614.00	\$182,842.00	No
004B-14	Dr. Joan King	Scientific	Louisiana State University Agricultural Center	New Request	Potential Health Beneficial Food Ingredients in Chlorella Algae Grown in Louisiana in a Photo-Bioreactor	\$66,000.00	\$68,500.00	\$68,500.00	\$203,000.00	No
005B-14	Dr. Subramaniam Sathivel	Scientific	Louisiana State University Agricultural Center	New Request	An oyster flavored powder from byproducts of the Gulf of Mexico oyster industry	\$64,410.00	\$62,310.00	\$0.00	\$126,720.00	Yes
006B-14	Dr. Chandra Theegala	Scientific	Louisiana State University Agricultural Center	New Request	Protecting Louisiana Water Bodies by Enhancing Treatment Efficiency in Sewer Systems and Animal Waste Lagoons by Bio-Augmentation with SewperRx and Lagoon Master Aerator	\$95,835.00	\$76,139.00	\$77,494.00	\$249,468.00	No
007B-14	Prof. Qinglin Wu	Scientific	Louisiana State University Agricultural Center	New Request	Cellulose Nanoparticle Reinforced Cements for Oil/Gas Well Casing Applications	\$72,264.00	\$72,264.00	\$72,264.00	\$216,792.00	No
008B-14	Prof. Steve C.S. Cai	Scientific	Louisiana State University and A & M College - Baton Rouge	New Request	Recycling concrete with geopolymers materials	\$77,171.00	\$75,415.00	\$71,321.00	\$223,907.00	No
009B-14	Prof. Aixin Hou	Scientific	Louisiana State University and A & M College - Baton Rouge	New Request	Modifying Human Gastrointestinal Microbiota By Modulators To Combat Childhood Obesity	\$77,053.00	\$59,723.00	\$0.00	\$136,776.00	No
010B-14	Dr. Konstantin Kousoulas	Scientific	Louisiana State University and A & M College - Baton Rouge	New Request	Production and Characterization of a Novel Live-Attenuated Feline Herpes Virus Type-1 Vaccine Modified to Prevent Neuronal Infections in Cats	\$107,394.00	\$93,394.00	\$0.00	\$200,788.00	No
011B-14	Dr. Jeffrey Nunn	Scientific	Louisiana State University and A & M College - Baton Rouge	New Request	Tuscaloosa Marine Shale Play	\$105,889.00	\$83,731.00	\$0.00	\$189,620.00	Yes
012B-14	Dr. George Stanley	Scientific	Louisiana State University and A & M College - Baton Rouge	New Request	Bimetallic Systems for Hydroformylation, Aldehyde-Water Shift, and Related Catalysis	\$93,538.00	\$80,538.00	\$72,538.00	\$246,614.00	No
013B-14	Prof. Shuangqing Wei	Scientific	Louisiana State University and A & M College - Baton Rouge	New Request	Optical ICS Based Network-Dynamics-Aware Resource Allocation for Enhancing Efficiency of Louisiana Wireless Information Network (LWIN)	\$65,624.00	\$60,768.00	\$60,296.00	\$186,688.00	No
014B-14	Dr. Chester Wilson	Scientific	Louisiana Tech University	New Request	Highly specific radiological detectors and nuclear waste remediation systems for Louisianas homeland security and energy industries	\$68,022.00	\$68,128.00	\$68,307.00	\$204,457.00	No

**Proposals Submitted to the Research and Development Program - ITRS
for the FY 2013-14 Review Cycle**

Proposal #	PI Name	Category	Institution	Proposal Request	Project Title	Amount Requested				Confidential Info
						Year 1	Year 2	Year 3	Total	
015B-14	Dr. Victor Mbarika	Non-Scientific	Southern University and A&M College - Baton Rouge	New Request	Developing Speech and Natural Language Based Access Technologies	\$104,875.00	\$111,776.00	\$64,909.00	\$281,560.00	No
016B-14	Prof. Brent Koplitz	Scientific	Tulane University	New Request	Using Laser Radiation to Generate Interlayers in Metallized Polymers	\$73,651.00	\$65,250.00	\$54,020.00	\$192,921.00	No
017B-14	Prof. Rakesh Bajpai	Scientific	University of Louisiana at Lafayette	New Request	Microbial lipids from hydrolysates of agricultural residues for production of biofuels	\$73,628.00	\$74,485.00	\$75,375.00	\$223,488.00	No
018B-14	Dr. Andrei Chistoserdov	Scientific	University of Louisiana at Lafayette	New Request	Production of biodiesel from Louisiana local natural gas sources	\$52,500.00	\$52,500.00	\$50,500.00	\$155,500.00	No
019B-14	Dr. Stephen Dufreche	Scientific	University of Louisiana at Lafayette	New Request	Organic Compound Sensing and Analysis on Autonomous Undersea Vehicles	\$57,422.00	\$55,979.00	\$56,309.00	\$169,710.00	No
020B-14	Dr. Daniel Gang	Scientific	University of Louisiana at Lafayette	New Request	Optimization Design of the Wave Suppressor Sediment Collection [WSSC] System through Computational Simulation Study	\$65,713.00	\$65,350.00	\$64,610.00	\$195,673.00	No
021B-14	Dr. Raju Gottumukkala	Scientific	University of Louisiana at Lafayette	New Request	Social Media Infused Situational Awareness for Emergency Management	\$83,227.00	\$79,702.00	\$0.00	\$162,929.00	No
022B-14	Prof. Boyun Guo	Scientific	University of Louisiana at Lafayette	New Request	Improving Productivity of Shale Gas/Oil Wells Using Shockwave Completions	\$80,928.00	\$68,235.00	\$68,814.00	\$217,977.00	No
023B-14	Dr. Yucheng Liu	Scientific	University of Louisiana at Lafayette	New Request	Development, Optimization, and Validation of a Wave Energy Converter Prototype with Enhanced Power to Weight Ratio and Availability for Deep-water Offshore Platform Activities	\$98,760.00	\$61,617.00	\$47,350.00	\$207,727.00	No
024B-14	Dr. Yucheng Liu	Scientific	University of Louisiana at Lafayette	New Request	Exploration of Hydropower Technology in Louisiana by Developing and Assessing A Composite Hydroelectricity Turbine Set	\$43,422.00	\$55,117.00	\$47,850.00	\$146,389.00	No
025B-14	Prof. Devesh Misra	Scientific	University of Louisiana at Lafayette	New Request	Organic-Inorganic Nanophase Materials for Injection Molding of High Performance Products	\$85,443.00	\$85,443.00	\$85,443.00	\$256,329.00	No
026B-14	Prof. Vijay Raghavan	Scientific	University of Louisiana at Lafayette	New Request	Comparison of chemical structures, using 3-D structure coordinates, for determining chemical function	\$59,940.00	\$59,940.00	\$59,940.00	\$179,820.00	No
027B-14	Mr. Jonathan Raush	Scientific	University of Louisiana at Lafayette	New Request	Thermal Energy Storage for Renewable Energy Applications	\$100,000.00	\$50,000.00	\$25,000.00	\$175,000.00	No
028B-14	Prof. Mark Rees	Non-Scientific	University of Louisiana at Lafayette	New Request	The New Acadia Project	\$98,909.00	\$98,909.00	\$98,909.00	\$296,727.00	No
029B-14	Dr. Saeed Salehi	Scientific	University of Louisiana at Lafayette	New Request	An Integrated Approach to Study Casing while Drilling: Physics and Implementation	\$62,864.00	\$62,864.00	\$62,864.00	\$188,592.00	No
030B-14	Dr. Radhey Srivastava	Scientific	University of Louisiana at Lafayette	New Request	Catalytic Conversion of Cellulose-Derived Carbohydrates/Alcohol Sugars to Fuels and Value-Added Chemicals	\$132,644.00	\$99,994.00	\$99,994.00	\$332,632.00	No
031B-14	Dr. Ramalingam Subramaniam	Scientific	University of Louisiana at Lafayette	New Request	Characterization and evaluation of adsorbents from waste biomass for the potential treatment of industrial waste waters	\$86,373.00	\$86,529.00	\$83,248.00	\$256,150.00	No
032B-14	Dr. Joshua Vaughan	Scientific	University of Louisiana at Lafayette	New Request	Reducing Oscillation of Ship-Mounted Cranes Used for ASV Retrieval	\$52,429.00	\$62,512.00	\$58,399.00	\$173,340.00	No

**Proposals Submitted to the Research and Development Program - ITRS
for the FY 2013-14 Review Cycle**

Proposal #	PI Name	Category	Institution	Proposal Request	Project Title	Amount Requested				Confidential Info
						Year 1	Year 2	Year 3	Total	
033B-14	Prof. Dhruva Chakravorty	Scientific	University of New Orleans	New Request	Investigating the mechanisms of proteases to develop a method that predicts proteolytic peptide stability	\$72,449.00	\$67,390.00	\$67,844.00	\$207,683.00	Yes
034B-14	Dr. Robert Dupont	Non-Scientific	University of New Orleans	New Request	Diversifying the New Orleans Area Tourist Economy: Cultural Tourism, Anniversary Events and Mobile Applications	\$57,669.00	\$58,753.00	\$59,618.00	\$176,040.00	No
035B-14	Prof. Weillie Zhou	Scientific	University of New Orleans	New Request	Building Nanoelectronics on Flexible Substrates for Next Generation Device Applications	\$55,810.00	\$55,156.00	\$0.00	\$110,966.00	No

Total Number of Proposals submitted	35
Total Funds Requested for First Year	\$2,689,640.00
Total Funds Requested for Second Year	\$2,462,722.00
Total Funds Requested for Third Year	\$1,856,372.00
Total Funds Requested	\$7,008,734.00