LOUISIANA BOARD OF REGENTS

BOARD OF REGENTS SUPPORT FUND
RESEARCH & DEVELOPMENT PROGRAM

REVIEW OF RESEARCH PROPOSALS SUBMITTED FOR FUNDING CONSIDERATION IN THE PROOF-OF-CONCEPT/PROTOTYPING INITIATIVE (PoC/P)

FY 2015-16 COMPETITION

March 2016

LOUISIANA BOARD OF REGENTS SUPPORT FUND

PROOF-OF-CONCEPT/PROTOTYPING (PoC/P) INITIATIVE

FINAL PANEL REPORT

FY 2015-16

BACKGROUND INFORMATION

Twenty-seven (27) research proposals requesting a total of $1,034,151 were submitted for funding consideration during fiscal year (FY) 2015-16 under the Proof-of-Concept/Prototyping (PoC/P) Initiative of the Board of Regents Support Fund (BoRSF). Of the twenty-seven proposals submitted, two contained information of a confidential or proprietary nature. A two-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The twenty-six (one was withdrawn) proposals were reviewed for scientific and technical merit, commercialization opportunity, and potential for success by out-of-state experts. The experts included reviewers in each of the following four targeted industry sectors: Advanced Materials and Manufacturing; Life Sciences and Bioengineering; Digital Media and Enterprise Software; and Clean Technology and Energy. Each subject-area reviewer evaluated and prepared an in-depth evaluation form for each assigned proposal in the subject area.

All evaluation forms from out-of-state experts who participated in Phase I 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 II: Final Panel Review

Three out-of-state experts participated in Phase II of the review process and served on the final panel. The panel convened on March 23, 2016, to discuss Phase I subject-area evaluations, prioritize proposals, and develop funding recommendations. The final panel considered each of the twenty-six proposals extensively and based its recommendations on the following criteria:

A. Scientific and technical merit;

B. Commercial Opportunity; and

C. Potential for Success.

The panel was informed that a maximum of $350,000 would be available for new PoC/P research projects, though reductions were likely due to low revenues in the Support Fund. As a result of the final panel's deliberations, eight proposals were recommended for funding. These eight 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), and the final panel's consensus evaluation (Phase II).

Three other highly meritorious proposals considered at the final panel meeting and recommended for funding only if additional monies become available are listed in **Appendix B**.

Five other proposals were considered meritorious by the subject-area reviewers and the final panel, but were insufficiently developed in one or more areas to be worthy of funding at this time (Priority III); these are listed in **Appendix C.1**. The final panel believes that these investigators should carefully review the panel's comments and revise and resubmit their proposals in the future, with the prospect that improvements in proposal content could ultimately lead to an award.

The eleven remaining proposals, although meritorious in some respects (Priority Three) are listed in **Appendix C.2**.

The panel recommends that the Board of Regents commit funding for each Priority One and Two proposal at the level requested for a period of one year. Summary statements have been provided in **Appendix D** applicable to the eight Priority One proposals listed in Appendix A and **Appendix E** for each of the three Priority Two proposals meritorious and recommended for funding if more funds become available as listed in Appendix B. Summary statements for each of the five PoC/P considered meritorious but insufficiently developed in one or more areas (Priority Three) have been provided in **Appendix F.1.** These summaries include the following information for each proposal:

1. Proposal number and title;

2. Strengths and weaknesses of the proposal;

3. Commercial Opportunity or Potential for Success; and

4. Recommended BoRSF funding level and funding stipulations, as applicable. (***Note:*** This information is provided for the eight proposals recommended for funding (Appendix D) and the three proposals recommended for funding if additional funds become available (Appendix E).

General statements related to the eleven remaining meritorious proposals rated of lower priority (Priority Three) by the final panel are included in **Appendix F.2**.

General Comments for Funded Projects

No reduction in the scope of work plans of projects recommended for funding shall be allowed.

Cost sharing and matching commitments are binding. As a condition of funding, types and amount of institutional matching commitments as stated in the proposal shall be maintained in full.

The project activation date is June 1, 2016 and the termination date is no later than June 30, 2017. No-cost extensions may be requested but are generally discouraged considering the goals of the PoC/P initiative and should be limited to one (1) year.

Debriefing

Reviewer evaluations for each PoC/P proposal will be available to the applicant in July 2016.

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

APPENDIX A
PoC/P PROPOSALS HIGHLY RECOMMENDED FOR FUNDING
(PRIORITY ONE) (8)

Rank	Proposal No.	Institution	Requested BoRSF Funds	Recommended BoRSF Funds
1	004D	LSU A&M	$ 40,000	$ 40,000
2	001D	LSU A&M	36,750	36,750
3	008D	LSU A&M	33,528	33,528
4	009D	LSU A&M	33,693	33,693
5	013D	LSU A&M	39,895	39,895
6	020D	LA-TECH	37,623	37,623
7	010D	LSU A&M	30,325	30,325
8	007D	LSU A&M	40,000	40,000
TOTAL			**$ 291,814**	**$ 291,814**

Note: The panel's comments on these proposals are provided in Appendix D. The subject-area review for each proposal will be provided to the applicant in July 2016.

APPENDIX B
PoC/P PROPOSALS RECOMMENDED FOR FUNDING
IF ADDITIONAL FUNDS BECOME AVAILABLE
(PRIORITY TWO) (3)

Rank	Proposal No.	Institution	Requested BoRSF Funds	Recommended BoRSF Funds
1	021D	PBRC	**$** 39,680	**$** 39,680
2	026D	ULL	40,000	40,000
3	005D	LSU A&M	39,920	39,920

Note: The panel's comments on these proposals are provided in Appendix E. The subject-area review for each proposal will be provided to the applicant in July 2016.

APPENDIX C

PRIORITY THREE (16)

1. MERITORIOUS PoC/P PROPOSALS: REVISE AND RESUBMIT

003D
011D
012D
025D
027D

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 these proposals are provided in Appendix F.1. The subject-area review for each proposal will be provided to the applicant in July 2016.

2. MERITORIOUS PoC/P PROPOSALS OF LOWER PRIORITY

002D 017D
006D 018D
014D 019D
015D 022D (withdrawn)
016D 023D
024D

Note: These proposals are not listed in rank order of merit and are not recommended for funding as currently submitted. The panel's general statements on these proposals are provided in Appendix F.2. The subject-area review for each proposal will be provided to the applicant in July 2016.

APPENDIX D

PROPOSALS HIGHLY RECOMMENDED FOR FUNDING (PRIORITY ONE)

Proposal No. 004D **Rank: 1**

Principal Investigator: Shengmin Guo, Ph.D.

Institution: Louisiana State University and A&M College

Title: A Novel Powder Feeder for Selective Laser Melting Based 3D Printers

Comments: The overall goal of this project is to design, fabricate, and test a powder feeder, which is capable of handling multiple types of powders for a Selective Laser Melting (SLM) based 3D printer system. SLM—a key 3D printing or additive manufacturing technology—has the capability of making complex 3D metal parts with wide applicability. The technical quality of the proposal and the chances of success are very strong. The economic justification is convincing, as is the need for functionally graded materials in 3-D printing. The proposed budget appears appropriate with the hiring of undergraduate students for a portion of the work. This project provides a means to enhance a rapidly growing segment of manufacturing. While some industrial interest is shown, more will certainly be expected if the concept is successful. The current market is small; however, the potential impact of the work is significant. This is a strong proposal highly recommended for funding.

FUNDS REQUESTED: $40,000 **FUNDS RECOMMENDED: $40,000**

Appendix D (continued)

Proposal No. 001D **Rank: 2**

Principal Investigator: Babak Akbari, Ph.D.

Institution: Louisiana State University and A&M College

Title: Natural Gradient Drilling

Comments: The goal of this project is to make drilling for oil and gas more feasible, pushing the boundaries of depth and reservoir productivity while reducing the operational risks. The proposed alternative strategy of natural gradient drilling would reduce the need for setting many strings of casing to isolate upper formations from the drilling fluid that needs to become denser as the drilling progresses. The proposed work has the real potential to result in very significant cost savings in Gulf Coast drilling and completions, with an obvious benefit for Louisiana. This is an excellent proposal from a highly qualified investigator. The proposed budget is appropriate for the level of work outlined. This is a strong proposal highly recommended for funding.

FUNDS REQUESTED: $36,750 **FUNDS RECOMMENDED: $36,750**

Appendix D (continued)

Proposal No. 008D **Rank: 3**

Principal Investigator: Supratik Mukhopadhyay, Ph.D.

Institution: Louisiana State University and A&M College

Title: SeaVipers: Deep Learning and Computer Vision Based Dynamic Positioning Sensor for Marine Vessels

Comments: The overall goal of this project is to design and develop a prototype for a Machine Learning and Computer Vision-based Inertial Position Reference Sensor System (CVIPRSS, pronounced Seavipers). The principal advantages of the proposed system are freedom from specialized reference objects, shorter setup time and higher reliability. The PI has completed the necessary background work to address initial concerns and determine component and software needs. The proposed work plan, budget, and timeline are adequate for the work as outlined. There are a few issues to overcome in the development stage that will require dedicated work during the 12-month grant period. If successful, the product will provide a significant improvement over similar products currently on the market. Favorable interest has been received from companies that include General Dynamics and Marinetronix. The proposal also provided sufficient detail on the potential market for the product. Given the need within the shipping and oil industries, Louisiana is a logical choice for the product location. This is an excellent proposal and highly recommended for funding.

FUNDS REQUESTED: $33,528 **FUNDS RECOMMENDED: $33,528**

Appendix D (continued)

Proposal No. 009D **Rank: 4**

Principal Investigator: Kermit Murray, Ph.D.

Institution: Louisiana State University and A&M College

Title: Laser Ablation DNA Extraction and Sequencing

Comments: The goal of this proposal is to develop a laser-based ablation nano-dissection tool for DNA extraction and sequencing to allow single-cell-based DNA extraction. Although currently there is little need for such capability in the medical field, there is significant research interest in the technique. Using alternative approaches great strides have been made in cancer cellular evolution at the single-cell level with neoplastic tissue. The panel found the proposal title a bit misleading, as the project has nothing to do with DNA sequencing per se, but rather single-cell DNA extraction. The potential advantages claimed for the system [in comparison to commercially available systems from Zeiss, Thermofischer and Leica] would be very significant indeed. Quite astonishingly, the investigators demonstrate through preliminary data that intact plasmid DNA can be captured. An industrial partner for the project would have been desirable; however the panel could foresee great interest from a number of companies, if the project is successful. There would certainly be interest from the genomics research community. This is a project with great potential and a high chance of success; it is strongly recommended for funding.

FUNDS REQUESTED: $33,693 **FUNDS RECOMMENDED: $33,693**

Appendix D (continued)

Proposal No. 013D **Rank: 5**

Principal Investigator: Dandina Rao, Ph.D.

Institution: Louisiana State University and A&M College

Title: Development of Single-Well Gas-Assisted Gravity Drainage [SW-GAGD] Process for Enhancing Recovery from On- and Off-Shore Louisiana Oil Fields

Comments: The overall goal of the proposed project is to design, develop, and test an experimental system that will provide proof of the novel concept of Single-Well Gas-Assisted Gravity Drainage (SW-GAGD) for enhancing oil recovery from on- and off-shore reservoirs. This is an excellent proposal from a highly qualified researcher. The potential for success is very high. Dr. Rao has experience in this area and the final stages as outlined in the proposal to achieve commercialization are appropriate. This work could in fact generate income from the intellectual property (IP). The laboratory equipment appears reasonable, although visual models are only the first step. Considering the experience of the PI in this area, it is not clear if this work would constitute a 'new' idea or rather development of an existing concept. Nevertheless, this is an excellent proposal and highly recommended for funding.

FUNDS REQUESTED: $39,895 **FUNDS RECOMMENDED: $39,895**

Appendix D (continued)

Proposal No. 020D **Rank: 6**

Principal Investigator: David Mills, Ph.D.

Institution: Louisiana Tech University

Title: 3D Printing of Customized Implants for Repair of Orofacial Deformities and Defects

Comments: The proposed project to fabricate 3D printed appliances offers great potential to improve treatment outcomes of cleft lip/palate patients and diminish the morbidity associated with current treatment choices. The overall research and development methods appear appropriate considering the principal investigator's previous experience. Selected companies are offering adequate support for the manufacturing of the devices. However, the proposed budget appears quite modest considering the use of 3D printed devices enhanced with biologics, such as BMPs. The project offers great potential for patent and further commercial development. The timeline seems short, but considering the PI's previous experience and past project history, it can be done. Overall, this is an excellent project that offers great potential for both improvement of treatment options and commercial development. It is highly deserving and recommended for funding.

FUNDS REQUESTED: $37,623 **FUNDS RECOMMENDED: $37,623**

Appendix D (continued)

Proposal No. 010D **Rank: 7**

Principal Investigator: Krishnaswamy Nandakumar, Ph.D.

Institution: Louisiana State University and A&M College

Title: Space Filling High Throughput Microbubble Generator: Phase 2

Comments: This is an interesting proposal for the development of a novel device for microbubble generation that could potentially benefit several industries. The expected outcome is a simple microbubble generator design that provides bubbles smaller than 500 microns with energy efficiency greater than 1% – that is, approximately 10 times the best case available commercially. Such an efficient microbubble generator would allow fermentation reactor volumes to be reduced by an order of magnitude. It could also be useful in the bioprocessing industries, mineral flotation, aerobic wastewater processing, and especially for natural gas fermentation. The PI is well qualified and the proposed work plan clearly outlined. Chances for success appear to be high. A potential customer, Lanzatech Inc. (Skokie, IL) has been identified. Lanzatech has successfully designed pilot- and industrial-scale plants for the fermentation of waste gases from the steel industry to generate liquid fuels. Lanzatech has expressed an interest in licensing this technology subject to successful demonstration of the performance of the lab-scale model. The proposed budget appears appropriate. This is a very good proposal and recommended for funding.

FUNDS REQUESTED: $30,325 **FUNDS RECOMMENDED: $30,325**

Appendix D (continued)

Proposal No. 007D **Rank: 8**

Principal Investigator: Roger Laine, Ph.D.

Institution: Louisiana State University and A&M College

Title: Pilot Synthesis of Nootkatone for Technology Transfer to Chemical Engineering Industry

Comments: The primary thrust of the proposed work is to achieve an increased yield in the production of the flavoring agent Nootkatone, which has a modest established market for flavors and fragrances and a potential market as an insect repellent. The PI's preliminary work has established the feasibility of the approach. The proposal shows three steps in the Nootkatone synthesis where yields might be improved in order to give the six-fold decrease in the cost of production required for a competitive product. A key step to be optimized is the oxy-cope rearrangement. It would be useful to have identified the yields required for the process to be commercially viable. The PI has established good industrial collaborations with Albemarle, where the three steps in the synthesis have been identified for the necessary increases in yield. The use of ozonolysis in steps 1 and 3 and the optimization of the oxy-cope rearrangement seem reasonable, but the potential increases in yields are difficult to predict. There is a potential commercial partner in Citrazone. The PI has an excellent academic record and business development experience. The proposed budget, which mostly provides support for a research associate, is appropriate considering the complex chemical synthesis required over a short timeframe. This is a very good proposal and recommended for funding.

FUNDS REQUESTED: $40,000 **FUNDS RECOMMENDED: $40,000**

APPENDIX E

PROPOSALS RECOMMENDED FOR FUNDING IF ADDITIONAL FUNDS BECOME AVAILABLE (PRIORITY TWO)

Proposal No. 021D **Rank: 1**

Principal Investigator: Tiffany Stewart, Ph.D.

Institution: Pennington Biomedical Research Center

Title: Comprehensive Assessment of Body Image (CBI): Development & Feasibility Testing

Comments: The proposed research aims to develop a psychometrically valid advanced tool for the measurement of the multiple dimensions that constitute body image. This tool is to be available online and via smart phone. The ultimate goal is to create a tool which is the base of a consumer-oriented product for improvement of body image, eating behaviors and weight management. Much of the initial set of final goals [noted as 1] are already available commercially and used in a wide set of venues. User interface issues [2], particularly addition of cognitive and meta-cognitive issues, are of interest, as well as goals 3 and 4. Although the panel is skeptical that these goals can be achieved in a year, building on the existing BMA 2.0 tool does provide a head start. The PI does a very nice job describing potential commercial opportunities and the panel has confidence in the well-proven abilities of Pennington. The proposal did lack details of how the end user [consumer], will actually use and benefit from the tool as the tool does not have data on the end user's "real" body type, although it certainly could measure cognitive aspects of body image. There is a disconnect between the end user's self-image and reality. Nevertheless, one could see many useful applications for the technology. This is a very good proposal that should be funded if additional funds become available.

FUNDS REQUESTED: $39,680 **FUNDS RECOMMENDED: $39,680**

Appendix E (continued)

Proposal No. 026D **Rank: 2**

Principal Investigator: Daniel Gang, Ph.D.

Institution: University of Louisiana at Lafayette

Title: Concept Evaluation of Novel Green Pavement Material: Multifunctional Open Graded Friction Courses (MOGFC)

Comments: The overall goal of this proposal is to study the effect of adding fly ash to existing pavement structures to reduce the run-off of dissolved heavy metals. The science is reasonable and the principal investigator is well qualified. The work plan is a series of characterization tests for an additive to an existing class of materials. Several of the tests rely on equipment not within the University but located at the Florida Department of Transportation. Salary is requested for supervising graduate students who will perform many tests in a limited timeframe. The project milestones are reasonable but do not culminate in any projected outcome of significance. While there has been significant work in the area as cited by the PI, none appears to correspond to this class of materials. Recycling tests are questionable with the limited test matrix proposed. The potential for success in this area is not very clearly articulated. However, this is a very good proposal that should be funded if additional funds become available.

FUNDS REQUESTED: $40,000 **FUNDS RECOMMENDED: $40,000**

Appendix E (continued)

Proposal No. 005D **Rank: 3**

Principal Investigator: Maria Gutierrez-Wing

Institution: Louisiana State University and A&M College

Title: Self Powered Lights for Photosynthetic Cultures

Comments: The goal of this project is to provide proof of the feasibility of using a self-powered, unattached, neutral buoyancy light to overcome the depth limitation due to light penetration from the microalgal cultures to achieve economic and energetic viability for the microalgal industry. The PI and co-PI have excellent experience in both microalgae technologies and microdevices, and both are essential for optimizing photosynthetic microalgal biomass production. The proposed use of self-powered, unattached, neutrally buoyant LED lighting seems innovative and could provide a boost in microalgal production. A first prototype has been developed and disclosed to the LSU Technology Office, but this prototype needs to be miniaturized and the system optimized for maximum productivity. The torsion spring structure with magnets for electromagnetic induction by microcoils with capacitors for storage seems difficult to miniaturize effectively, along with the microtransformer to boost voltage and the convertor to generate the DC voltage required. This would be challenging to accomplish within the limited timeframe of the proposed research, but the feasibility of this approach should be established. The use of battery-powered LEDs in the initial stages of the proposed research seems reasonable. However, the research plan is sketchy and short on details. This may be the result of proprietary information being withheld from the proposal. More information on the patent disclosure to the LSU Technology Office would be useful for evaluating the proposal, but may not be realistic at this early stage of the research. The budget is a good split among PI support, graduate student support and supplies. The PIs have established a good industrial partner in Cajun Biologic Systems, LLC. It is difficult to judge the potential for success without some additional information on the prototype produced. Nevertheless, the ideas are innovative and useful. Approaches such as using water movement to maintain cells in suspension and producing LEDs that are miniaturized and effective in photosynthetic microalgal production are worthwhile research directions. This is a very deserving proposal that should be funded if additional resources are identified.

FUNDS REQUESTED: $39,920 **FUNDS RECOMMENDED: $39,920**

APPENDIX F.1

MERITORIOUS PROPOSALS: REVISE AND RESUBMIT (PRIORITY THREE)

Proposal No. 003D

Principal Investigator: Theda Daniels-Race, Ph.D.

Institution: Louisiana State University and A&M College

Title: Faraday Electrospraying

Comments: This proposal seeks to develop an alternative method of electrospraying using sound waves and eliminating needles, nozzles, or wire frames. Minus these mechanical challenges of conventional electrospraying, this technique could provide a means to synthesize production-scale nanoparticles and fibers of high quality at a lower cost than current methods**.** Funds for an industrially suitable demonstration of Faraday deposition are requested, yet the budget itself is primarily for salary. There appears to be a disconnect between the proposal and the proposed budget. The budget appears to support simulation and academic work to show proof-of-concept, but the proposal clearly states that a machine is to be developed based upon existing success. The work plan is not clearly described. While this is a very important manufacturing sector there are no supporting industry partners identified. There is a list of potential users but none who are willing to provide support. The background work and literature search were limited and the PI has not demonstrated a fundable nor publishable program in this area. However, this is a meritorious proposal in an important area and could be funded in the future with improvements.

Proposal No. 011D

Principal Investigator: Kidong Park, Ph.D.

Institution: Louisiana State University and A&M College

Title: Hollow Microcarrier for Large-Scale Culture of Anchorage-Dependent Cells in Bioreactors

Comments: The goal of this proposal is to commercialize a hollow microcarrier (HMC) that can substantially enhance the yield and capacity of a large-scale cell culture by protecting target cells from hydrodynamic stress in a bioreactor. The proposed concept of a hollow microcarrier is a clever idea that, based upon the proposal, is achievable in the time period of the grant. The budget is reasonable, allocated primarily to a graduate student and supplies. The panel is skeptical of the commercial opportunity for this technology. It is incremental rather than disruptive in nature and it is not clear that the incremental change is enough to entice biopharmaceutical companies to license the technology and modify their existing systems. Clear demonstration of a competitive advantage is needed. By addressing these issues, this proposal could be funded in the future.

Appendix F.1 (continued)

Proposal No. 012D

Principal Investigator: Lu Peng, Ph.D.

Institution: Louisiana State University and A&M College

Title: Test Chip Manufacturing of Memory Bandwidth Broaden Switches

Comments: Funds for a switchable pin memory chip are requested for hardware fabrication of a test device. The PI provided a case for a large projected market value [$100B/yr] with a reasonably detailed market analysis. The technical details of the algorithm for power redistribution are not well explained and simulation results are not included. The statement that simulation showed feasibility was not demonstrated. The scientific steps that may be constraints are not well developed. Temperature sensitivity appears important, but no mention is made of how to mitigate this sensitivity. The product appears novel and it is stated that it can increase speeds by 2.1. The concept does provide a different approach and may be disruptive in the short term. While simulation results have not been included, the speed of this sector does give rise to fast implementation. Lack of specific partners is a problem. One Google investigator is interested in the concept via e-mail but has made no commitment. With these concerns addressed, this proposal could be more competitive in the future.

Proposal No. 025D

Principal Investigator: William Chirdon, Ph.D.

Institution: University of Louisiana at Lafayette

Title: Development of Algal Waste Composite Materials Technology for Commercialization by Louisiana Industries

Comments: The PI for this project has developed a new technology for converting algal wastes into binders for composite materials. The PI has excellent experience in the use of algal wastes in value-added products. The approach is very empirical but seems to work. An excellent supporting letter from Norris Le Blanc Millworks on the use of these binders for sawdust illustrates the utility of the approach and the good quality of the resulting products. Task (1), determining the algal protein denaturation kinetics in order to optimize adhesion using rheological studies, requires better justification. References would have been useful in this justification. The PI states that denaturation exposes the hydrophilic portions of proteins which allows adhesive groups to adsorb strongly to substrates and filler materials, and the glue has its maximum strength at maximum viscosity. This justification for denaturation and for the viscosity tests used to optimize denaturation conditions and time should be better supported. The budget requests funds for the PI, graduate student and supportive expenses [travel, supplies and equipment]. These appear reasonable, though $9,000 for a graduate student seems much too low. This is a meritorious proposal in an important area and could be funded in the future, once concerns are addressed.

Appendix F.1 (continued)

Proposal No. 027D

Principal Investigator: William Hollerman, Ph.D.

Institution: University of Louisiana at Lafayette

Title: Developing Materials for a Bright Prototype One-Way Luminescent (OWL) Tracer for Commercial and Military Applications

Comments: The proposal is a continuation of work performed by the PI under a U.S. Army contract for luminescent tracer materials. The PI seeks to complete a survey of materials that can last longer and maintain brighter tracers, as desired by government users. Some technical background is provided, and the PI's experience is sound but the proposal itself is lacking. The statement that emission can be improved by washing in alcohol before use provides no mechanism or basis for application. Characterization activities were previously developed and are sound but not considered novel. The production of a roadmap for luminescent materials (LM) synthesis does not seem to fit with the proof-of-concept charge. The work is itself described as an incremental improvement in tracer luminescence that is based upon solid previous work but does not disrupt the technology as it is utilized today. While particular materials may be patentable, it is not clear that a major economic advantage will be realized. There is certainly a large potential for this work in the governmental [military] sector, but the commercial [non-military] sector argument is not very convincing. The current partner interested in this work is Intelligent Materials Solutions Inc. [IMS] located in Washington D.C., which has the ability to synthesize the materials of interest. The proposed budget appears to have an excessive amount for travel. With recommended improvements, this proposal would be more competitive in the future.

APPENDIX F.2

MERITORIOUS PROPOSALS OF LOWER PRIORITY
PRIORITY THREE

Individual commentaries on proposals listed in Appendix C.2 (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):

- The proposal did not have clear objectives and/or research plans
- The proposal showed little or no commercialization potential, or economic justification
- Weak interest was shown from potential end users/commercial partners
- Budgets were excessive, inadequately justified, or inconsistent with provided budget justifications
- Equipment requests were excessive and/or inappropriate for the research proposed

APPENDIX G

LIST OF SUBJECT-AREA AND FINAL PANEL REVIEWERS WHO PARTICIPATED IN THE REVIEW PROCESS

LIFE SCIENCES AND BIOENGINEERING

Dr. Dick Auld
Professor
Plant and Soil Science
Texas Tech University

Dr. Howard Reisner
Professor
School of Medicine
Department of Pathology and Laboratory Medicine
University of North Carolina at Chapel Hill

Dr. Thiago Morelli
Clinical Assistant Professor
Department of Periodontics
School of Dentistry
University of North Carolina

CLEAN TECHNOLOGY AND ENERGY

Dr. Russell D. Ostermann
Associate Chair
Department of Chemical and Petroleum Engineering
University of Kansas

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

DIGITAL MEDIA AND ENTERPRISE SOFTWARE

Dr. John M. Usher
Department of Industrial Engineering
Mississippi State University

ADVANCE MATERIALS AND MANUFACTURING

Dr. James A. Rice
Associate Professor
Department of Mechanical & Industrial Engineering
Marquette University

Appendix G (continued)

PoC/P FINAL PANEL

Dr. Richard C. Seagrave (Chair)
Emeritus Distinguished Professor
Chemical and Biological Engineering
Iowa State University

Dr. Jay P. Gore
Professor
School of Mechanical Engineering
Purdue University

Dr. Alan H. Rebar
Vice Chancellor of Research, Innovation and Economic Development
North Carolina State University

APPENDIX H

SUMMARY OF PROPOSALS SUBMITTED
PROOF-OF-CONCEPT/PROTOTYPING (PoC/P) INITIATIVE
FY 2015-16

Proposals Submitted to the Research and Development Program - PoC/P
for the FY 2015-16 Review Cycle

Proposal #	PI Name	Category	Institution	Project Title	Amount Requested	Confidential Info
001D-16	Dr. Babak Akbari	Clean Technology and Energy	Natural Gradient Drilling	Louisiana State University and A & M College	$36,750.00	No
002D-16	Prof. Jin-Woo Choi	Life Sciences and Bioengineering	A Passive and Wirelessly Powered Neurostimulator	Louisiana State University and A & M College	$40,000.00	No
003D-16	Dr. Theda Daniels-Race	Advanced Materials and Manufacturing	Faraday Electrospraying	Louisiana State University and A & M College	$39,879.00	No
004D-16	Dr. Shengmin Guo	Advanced Materials and Manufacturing	A Novel Powder Feeder for Selective Laser Melting based 3D Printers	Louisiana State University and A & M College	$40,000.00	No
005D-16	Dr. Maria Gutierrez-Wing	Clean Technology and Energy	Self powered lights for photosynthetic cultures	Louisiana State University and A & M College	$39,920.00	No
006D-16	Dr. Guang Jia	Life Sciences and Bioengineering	A novel endorectal CT detector for high resolution 3D prostate cancer screening and diagnosis	Louisiana State University and A & M College	$39,925.00	No
007D-16	Prof. Roger Laine	Other - Chemical Manufacturing	Pilot Synthesis of Nootkatone for Technology Transfer to Chemical Engineering Industry	Louisiana State University and A & M College	$40,000.00	No
008D-16	Prof. Supratik Mukhopadhyay	Digital Media and Enterprise Software	SeaVipers: Deep Learning and Computer Vision Based Dynamic Positioning Sensor for Marine Vessels	Louisiana State University and A & M College	$33,528.00	No
009D-16	Prof. Kermit Murray	Life Sciences and Bioengineering	Laser Ablation DNA Extraction and Sequencing	Louisiana State University and A & M College	$33,693.00	No
010D-16	Prof. Krishnaswamy Nandakumar	Other - Chemical Manufacturing	Space filling high throughput microbubble generator: Phase 2	Louisiana State University and A & M College	$30,325.00	No
011D-16	Prof. Kidong Park	Life Sciences and Bioengineering	Hollow microcarrier for large-scale culture of anchorage-dependent cells in bioreactors	Louisiana State University and A & M College	$39,344.00	No
012D-16	Prof. Lu Peng	Advanced Materials and Manufacturing	Test Chip Manufacturing of Memory Bandwidth Broaden Switches	Louisiana State University and A & M College	$40,000.00	No
013D-16	Dr. Dandina Rao	Clean Technology and Energy	Development of Single-Well Gas-Assisted Gravity Drainage [SW-GAGD] Process for Enhancing Recovery from On- and Off-shore Louisiana Oil Fields	Louisiana State University and A & M College	$39,895.00	No
014D-16	Dr. Andrew Schwarz	Digital Media and Enterprise Software	Empowering the Mobile Workforce of the 21st Century	Louisiana State University and A & M College	$35,969.00	No
015D-16	Prof. Edward Shihadeh	Other - College Student Recruitment [Enrollment]	Predicting and Targeting College Student Recruitment	Louisiana State University and A & M College	$35,672.00	No
016D-16	Prof. Wanjun Wang	Life Sciences and Bioengineering	Prototype Development of a Novel Lab-on-CD Instrument for Commercialization and Technology Transfer	Louisiana State University and A & M College	$40,000.00	No
017D-16	Prof. Harris Wong	Clean Technology and Energy	Development of a “Sequoia” heat pipe	Louisiana State University and A & M College	$40,000.00	No
018D-16	Dr. Mehdi Zeidouni	Clean Technology and Energy	Fracture network characterization of shale gas reservoirs using temperature transient analysis	Louisiana State University and A & M College	$38,561.00	No
019D-16	Dr. Mehdi Zeidouni	Clean Technology and Energy	A novel approach for combined CO2 storage and shale gas extraction	Louisiana State University and A & M College	$38,561.00	No
020D-16	Dr. David Mills	Life Sciences and Bioengineering	3D Printing of Customized Implants for Repair of Orofacial Deformities and Defects	Louisiana Tech University	$37,623.00	No
021D-16	Dr. Tiffany Stewart	Life Sciences and Bioengineering	Comprehensive Assessment of Body Image [CBI]: Development & Feasibility Testing	Pennington Biomedical Research Center	$39,680.00	No

Proposals Submitted to the Research and Development Program - PoC/P
for the FY 2015-16 Review Cycle

Proposal #	PI Name	Category	Institution	Project Title	Amount Requested	Confidential Info
022D-16	Prof. Brian Mitchell	Advanced Materials and Manufacturing	[Withdrawn by Institution] Fabrication and Testing of a Silicon Nanoparticle-Based Anode for Lithium Ion Battery Applications	Tulane University	$39,844.00	Yes
023D-16	Dr. Jaime Palomino	Life Sciences and Bioengineering	Proving the GemView LM as a Licensing Opportunity through Targeted Research and Development	Tulane University Health Sciences Center	$37,000.00	No
024D-16	Dr. William Wimley	Life Sciences and Bioengineering	Spontaneous Membrane Translocating Peptides as Drug Delivery Vehicles	Tulane University Health Sciences Center	$38,250.00	No
025D-16	Dr. William Chirdon	Clean Technology and Energy	Development of Algal Waste Composite Materials Technology for Commercialization by Louisiana Industries	University of Louisiana at Lafayette	$39,732.00	No
026D-16	Dr. Daniel Gang	Advanced Materials and Manufacturing	Concept Evaluation of Novel Green Pavement Material: Multifunctional Open Graded Friction Courses (MOGFC)	University of Louisiana at Lafayette	$40,000.00	No
027D-16	Dr. William Hollerman	Advanced Materials and Manufacturing	Developing Materials for a Bright Prototype One-Way Luminescent [OWL] Tracer for Commercial and Military Applications	University of Louisiana at Lafayette	$40,000.00	Yes

Total Number of Proposals submitted	27
Total Funds Requested	$1,034,151.00