

Hansen, Andrew

OTFWPP 11-431

From: Sarit Bhaduri [sarit.bhaduri@gmail.com]
Sent: Tuesday, November 30, 2010 11:02 AM
To: OTFWPP2011
Subject: Re: 2011 OTFWPP LOI
Attachments: WP2011LOI-1.pdf

Attached is a LOI for the OTFWPP 2011 program.

Sincerely,

Sarit Bhaduri

--

Sarit B. Bhaduri
Director, Multi-functional Materials Laboratory
Departments of MIME and Surgery
2801 W. Bancroft Street
University of Toledo
Toledo, OH 43606
Tel: 419 530 8223
Fax: 419 530 8206

Title: Building Infrastructure for Manufacturing and Evaluation of Orthopedic Products from Advanced Biomaterials

Submitted to the Wright Projects Program

Lead Applicant: Sarit B. Bhaduri, University of Toledo
MS 312, MIME, 2801 W. Bancroft Street
Toledo, OH 43606. Phone: 419 530 8223 Fax: 419 530 8206
Email: sarit.bhaduri@utoledo.edu

Estimated Requested mount: \$2M

SUMMARY OF THE PROPOSED PROJECT

The aim of the Wright Projects proposal is to build infrastructure for manufacturing and evaluation of orthopedic products from advanced biomaterials. The focal point here will be metals such as titanium and its alloys and ceramics such as calcium phosphate based materials. This interdisciplinary project will have strong links with the advanced materials and biomedical industries of Ohio, which according to the Battelle studies are dominant industries in Ohio.

The University of Toledo will spearhead the effort. The idea is to further develop the intellectual properties that are being generated at the educational and commercial locations at Toledo, Cleveland and Dayton. This proposed effort will help in catalyzing the development work beyond the valley of death into commercially viable products.

Two broader ranges of products will be developed here. The first range of products will be surface engineered biologics loaded metallic implants and porous scaffolds for the treatment of bone-loss related afflictions such as osteoporosis and injuries. A second series of products will be complementary to the first. These will be a new generation of calcium-phosphate (Ca-P)-based cements with multifunctional capabilities for repairing a broad range of complex bone defects and fixation of implants.

With the above theme in mind, it is anticipated that a number of *state-of-the-art* equipment will be procured and placed in various laboratories. Physical evaluation equipment will include a Digital Motion X-ray Machine, a micro-indenter equipment (Biodent/Quad group), and a Nanoindenter (Hysitron.) Cell culture equipment will include a Multi Photon Excitation (MPE) Confocal Microscope (LSM 510 NLO META, Carl Zeiss Inc.), customized dual fiber electrospinning apparatus (Glassman MK30), Multiporator Electroporation (Eppendorf), Nucleofector (Amaxa), Laser Capture Microdissection System (Arcturus XT, MDS Analytical Systems), Flow Cytometer/Cell Sorter (FACS Aria, BD Immunocytometry Systems), Coulter Cell Counter (Multisizer II, Beckman Coulter), DNA, Protein, and Western Blot Equipment (Biorad), Automatic Stainer (Autostainer, Leica), Rotary microtome (HM355S, Microm, Waldorf, Germany), Exakta embedding system, Capillary Electrophoresis System, Freeze Drying System (Freezone 6, Labconco). These facilities will help supplying the industries with well-trained local manpower, while simultaneously helping the industrial partners.

From: padture@matsceng.ohio-state.edu on behalf of Prof. Nitin P. Padture
[padture@matsceng.ohio-state.edu]
Sent: Tuesday, November 30, 2010 11:08 AM
To: OTFWPP2011
Subject: 2011 OTFWPP LOI
Attachments: PadtureWrightProject2011Lol.pdf; ATT00001.htm

Please see attached Letter of Intent as a pdf file. Please acknowledge receipt. Thanks.

~~~~~  
Nitin P. Padture, Ph.D.  
Director, Center for Emergent Materials (NSF MRSEC)

College of Engineering Distinguished Professor,  
Department of Materials Science and Engineering

The Ohio State University  
Physics Research Building, Rm. 2066  
191 W. Woodruff Avenue, Columbus, OH 43210  
Phone: (614)247-8114 FAX: (614)292-5241  
[padture.1@osu.edu](mailto:padture.1@osu.edu) <http://mse.osu.edu/faculty/padture/>  
~~~~~



Center for Emergent Materials

Physics Research Building, Room 2066
191 West Woodruff Avenue
Columbus, OH 43210-1117

Phone (614) 247-8114

Fax (614) 292-5241

Email padture.1@osu.edu

Website <http://cem.osu.edu>

November 30, 2010

The Ohio Department of Development
Technology and Innovation Division
77 South High Street, 25th Floor
Columbus, OH 43215

Email: OTFWPP2011@development.ohio.gov

Re: Letter of Intent for Competing in the 2011 Ohio Third Frontier Wright Projects Program

Dear Sir/Madam:

This serves as the Letter of Intent (LoI) for submitting a proposal in the 2011 Ohio Third Frontier Wright Projects Program in the area of Advanced Materials.

Lead Applicant: Center for Emergent Materials
(an NSF Materials Research Science and Engineering Center)
The Ohio State University
Physics Research Building, Room 2065
191 West Woodruff Avenue
Columbus, OH 43210-1117

Contact: Prof. Nitin P. Padture, Director
Phone: 614-247-8114
Email: padture.1@osu.edu

Project Title: High Frequency Active and Passive Electronic Devices and Sensors

Grant Funds Requested: \$3,000,000 for 3 years

Collaborators: Lockheed Martin Corporation, The Boeing Company, Raytheon Company, Northrop Grumman Corporation, Traycer Diagnostic Systems, and Lake Shore Cryotronics.

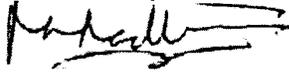
Project Summary: The Center of Emergent Materials (CEM), an National Science Foundation (NSF) Materials Research Science and Engineering Center (MRSEC) at The Ohio State University (OSU), has selected a world-class industry-led collaborative for proposed development and commercialization of high-frequency active and passive electronic devices and sensors. Founded in September 2008, the CEM involves about 85 personnel (faculty, undergraduate and graduate students, postdocs, staff), with an annual budget of about \$3 million, and is funded for 6 years. The CEM also has active research

collaborations with many partners (universities, government laboratories, industry), both in the US and abroad. This proposed project will leverage this federal funding and the unique set of expertise within the CEM. The funds awarded would be used for advanced fabrication and packaging of advanced materials for sensors, proof-of-concept modeling, and commercial prototyping. This is likely to result in Ohio becoming a global leader in this rapidly growing, high-tech industry that will create significant new jobs and attract outside companies to Ohio. Areas of product development include:

- Next generation high-frequency microwave and optical telecommunications
- Advanced wafer scale semiconductor device fabrication and characterization techniques for next-generation imaging, energy harvesting, and computing applications
- Fabrication, processing, and hybridization of electronic sensors

Additionally, the capital equipment and funds requested will allow the CEM to leverage through its existing outreach and development initiatives to maintain, educate, and expand the Ohio materials and sensors workforce.

Yours sincerely,



Nitin P. Padture, Ph.D.

Director, Center for Emergent Materials

College of Engineering Distinguished Professor, Dept. Mater. Sci. & Engr.

Professor (by courtesy), Department of Physics

Hansen, Andrew

OTFWPP 11-433

From: Judy Fulton [JFulton@agmc.org]
Sent: Tuesday, November 30, 2010 11:12 AM
To: OTFWPP2011
Cc: RAnth44341@aol.com; cwoolver@kent.edu
Subject: 2011 OTFWPP LOI
Attachments: 2011 OTFWPP LOI (Woolverton).pdf

To Whom It May Concern,

Please find attached a Letter of Intent for the 2011 Ohio Third Frontier Wright Projects Program outlining a project entitled "Applications of Cold Plasma for Wound Disinfection and Healing."

Thank you for this opportunity.

Judy Fulton, Ph.D.
Chair, Consortium for Wound Healing Research and Education Director Wound Research Wound Healing and Limb Preservation Center Akron General Medical Center 400 Wabash Ave.
Akron, OH 44307
330-344-6394
jfulton@agmc.org

The opinions expressed here are the personal opinions of Judy Fulton.
Content published here is not read nor approved by Akron General before being posted and does not necessarily represent the views and opinions of Akron General.



November 29, 2010

The Ohio Department of Development
Technology and Innovation Division
77 South High Street, 25th Floor
Columbus, OH 43215

Via: OTFWPP2011@development.ohio.gov

Re: 2011 OTFWPP LOI

To Whom It May Concern:

By this letter, Kent State University intends to submit a proposal responding to Ohio Third Frontier Wright Projects Program Fiscal Year 2011 RFP. The title of the proposal is *Applications of Cold Plasma for Wound Disinfection and Healing*.

The PI for the proposal is Christopher J. Woolverton, Ph.D., The College of Public Health 126 Lowry Hall, Kent State University, PO Box 5190, Kent, OH 44242-0001, (330) 672-4648, cwoolver@kent.edu. Other key personnel include: Dr. Judith A. Fulton¹, Mr. Robert Anthony¹, Dr. Bruce Banks², Mr. Leon Polott⁴, and Valentina Goutorova⁴. Participating institutions include: Kent State University, Kent, OH; Akron General Medical Center, Akron, OH¹; BAB Technology, LLC, Cleveland, OH²; Sterionics, Inc., Cleveland, OH⁴.

Cold plasma (average temperature less than 100°F) is an emerging, disruptive, platform technology with broad medical applications. The proposed research is based on patent-pending technology and trade secrets owned by Sterionics, Inc (U.S. Patent Application No. 12/13315310). The uniqueness of this cold plasma technology is based in the pulse plasma discharge that (1) does not need to be delivered to dry surfaces, (2) utilizes a number of compounds that can be incorporated into the plasma discharge (oxygen, nitrogen, for example), and (3) utilizes metallic substrates (silver, copper and zinc, for example) that can be mechanically reduced to nano-sized particles for delivery. Other cold plasma technologies do not offer the combined effect realized using this cold plasma technology. The combined effect of the technology suggests a significant improvement in wound sterilization and healing, as compared to more traditional approaches and other cold plasma systems. An added benefit is that the current embodiment of the technology weighs less than 2 pounds and can be easily operated by technician-level staff.

The proposed research will complete preclinical studies that evaluate the use of cold plasma to cleanse wounds of infection and decrease time to wound healing. Specific research aims will (1) characterize the physical and chemical properties of a newly described cold plasma delivery device to optimize the plasma delivery mechanism, (2) evaluate and optimize cold plasma discharge to eradicate microorganisms and their biological components in vitro and in an animal

model of an infected wound, (3) evaluate and optimize cold plasma discharge for decreasing time for cell culture repair and regeneration after mechanical damage *in vitro*, and (4) evaluate and optimize cold plasma discharge for decreasing time to healing in animal models of traumatic and post-surgical wounds *in vivo*.

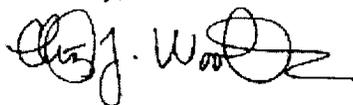
The significance of the proposed research is underscored by the exponential growth of severe illness and morbidity due to drug-resistant pathogens (MRSA, for example) and other hospital-acquired infections. According to the Center for Disease Control and Prevention, 34 of every 1,000 hospital in-patients are infected with methicillin-resistant *Staphylococcus aureus* (MRSA). This technology offers a completely new, painless approach of removing microorganisms and their inflammatory products at the wound site without antibiotics, while stimulating wound healing. With applications across the wound care market, the delivery of this technology to the market will result in extraordinary savings to the U.S. healthcare industry and improved patient care. According to Espicom Business Intelligence, the estimated value of the wound care market was \$10 billion in 2007 and is projected to grow to \$12.5 billion by 2012. Moreover, we believe that this platform technology can serve as an anchor for Akron area's efforts to grow a bio-medical industry and be a highly productive project for the Northeastern Ohio Consortium for Wound Healing Research and Education of which both Akron General Medical Center and Kent State University are key members.

The proposed project is ready for immediate implementation. Two devices have been built and delivered to the researchers at Kent State University and Akron General Medical Center. The devices are able to deliver low and high frequency plasma pulses to facilitate optimization for wound healing. Initial *in vitro* studies on several bacteria have been conducted at Kent State University and Akron General's Calhoun Lab demonstrating the remarkable antimicrobial and wound healing potential of the technology.

Long term sustainability plans to obtain additional funding (for clinical trials, etc.) are planned by Sterionics, Inc. Sterionics is conducting preliminary discussions with venture capital funders and prospective industrial partners in the medical device space and in sterilization technologies regarding investments and commercial collaborations in bringing this product to market. The company intends to proceed to clinical trials immediately upon the completion of this study. It is expected that some of these studies will be undertaken by the Northeastern Ohio Consortium for Wound Healing Research and Education .

A preliminary list of the expected 3-year outcomes and deliverables includes: devices that are frequency modulated for optimized wound disinfection and wound healing, devices optimized for delivery of base compounds to support wound disinfection and wound healing, preclinical data to support application for wound disinfection and wound healing clinical trials.

Sincerely,



Christopher J. Woolverton, Ph.D.
Professor, Environmental Health Science
Director, Center for Public Health Preparedness

Hansen, Andrew

OTFWPP 11-434

From: Young, Linda K [Linda.Young@udri.udayton.edu]
Sent: Tuesday, November 30, 2010 11:30 AM
To: OTFWPP2011
Cc: Sarangan, Andrew
Subject: 2011 OTFWPP LOI
Attachments: 2011 OTFWPP LOI.pdf

Attached is the University of Dayton's letter of intent for the subject solicitation. Please acknowledge receipt.

Thank you,



Linda Young
Proposal / Security Specialist
University of Dayton Research Institute
Contracts and Grants Admin/ Government Security Office
300 College Park, Room KL-542
Dayton, OH 45469-0104
(937) 229-2919



30 November 2010

Ohio Department of Development
Technology and Innovation Division
77 South High Street, 25th Floor
Columbus, OH 43215
OTFWPP2011@development.ohio.gov

SUBJECT: Letter of Intent for 2011 Ohio Third Frontier Wright
Projects, "High Speed Imaging Camera Technology for
Laser Radar"

Dear Sir or Madam:

The University of Dayton is pleased to submit this Letter of Intent for the
Fiscal Year 2011 Wright Projects Program Request for Proposal.

Information for this project is as follows:

Prospective Lead Applicant's Name

Dr. Andrew Sarangan
University of Dayton
300 College Park
Dayton, OH 45469-2951
937-229-3190
sarangan@udayton.edu

Proposed Project Title

High Speed Imaging Camera Technology for Laser Radar

Estimated Grant Funds

\$2 million

Known collaborators

RNET Technologies, Dayton, OH
Essential Research, Cleveland, OH
L3 Cincinnati Electronics, Cincinnati, OH

UNIVERSITY
OF DAYTON
RESEARCH
INSTITUTE

Office of the Director
300 College Park
Dayton, OH 45469-0101
(937) 229-2113
FAX (937) 229-2888

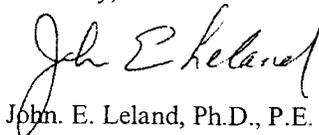
Summary

Laser radar systems have the capability to perform remote sensing with high sensitivity and Doppler information. This is performed with a technique known as heterodyning, where the return signal is combined with a local oscillator to create a beat signal. However, this requires high speed photodetectors in the range of hundreds of MHz to GHz. Hence, such systems are currently built with commonly available high speed detectors which come as individual detectors. For imaging applications, where thousands of detectors are required for acceptable spatial resolution, the high speed detectors have to be built in an imaging array format. The leap from discrete high speed detectors to arrays is a big one. It requires on-chip storage, high speed analog-to-digital converters and high speed interfaces to the detector materials. Such an imaging array has been in demand for many years, but none have successfully emerged in the market yet. This proposal is for developing a high speed imaging array in the near-infra-red wavelengths (1064nm to 1550nm) for laser radar applications. UD, along with its collaborators has access to all the technology pieces that are necessary for developing and building such a system. In addition to the collaborators listed above, UD also has an Air Force Center of Excellence in laser radar, and close ties to DoD agencies working on laser radar. This is a key technology that does not exist elsewhere in the United States, and will easily lead to commercial applications beyond the defense area. High speed imaging systems would also be of use in applications such as long range object identification, long range laser communications, light weight remote sensing, turbulence mitigation and visualization, material analysis, and aim-point selection and tracking for directed energy weapon beams.

Key Scientific/technical fields relevant to the proposed field: High speed imaging, laser radar, infra-red imaging

The University of Dayton looks forward to participating in this program to promote technology-based economic development within Ohio.

Sincerely,

A handwritten signature in black ink that reads "John E. Leland". The signature is written in a cursive, flowing style.

John. E. Leland, Ph.D., P.E.

Hansen, Andrew

OTFWPP 11-435

From: Jay [jayatis66@yahoo.com]
Sent: Tuesday, November 30, 2010 11:46 AM
To: OTFWPP2011
Subject: 2011 OTFWPP LOI
Attachments: 2011-OTFWPP LOI-Jayatissa.pdf

Dear Sir/Madam,

Please find attached Letter Of Intent (LOI) the Ohio Third Frontier Wright Projects FY 2011 Program.

Sincerely Yours,

Dr. A. H. Jayatissa

Associate Professor/Director of MEMS and Nanotechnology Lab.

Department of Mechanical, Industrial and Manufacturing Engineering

Mail Stop 312; The University of Toledo

2801 W. Bancroft Street, Toledo, OH 43606

Phone: (419) 530-8245;

Fax: (419) 530-8206;

E-mail: ajayati@utnet.utoledo.edu



November 30, 2010

Ohio Department of Development
Technology of Innovation Division
Attention: Ohio Third Frontier Wright Projects Program
77 South High Street, 25th Floor
Columbus, OH 43215

**Subject: Letter of Intent for Application for the Ohio Third Frontier Wright Projects -
FY 2011 Program**

Dear Sir/Madam,

The University of Toledo is planning to submit a proposal to the Ohio Third Frontier Wright Projects FY 2011 Program. Details of the intended proposal are given below:

1. Lead Applicant:

The University of Toledo, 2801 W. Bancroft Street, Toledo, OH 43606

2. Contact Person:

Dr. A. H. Jayatissa, Associate Professor; Department of Mechanical, Industrial and Manufacturing Engineering; Mail Stop 312; The University of Toledo, 2801 W. Bancroft Street, Toledo, OH 43606

Phone: (419) 530-8245; Fax: (419) 530-8206; E-mail: ajayati@utnet.utoledo.edu

3. Project Title:

Advanced Micromachined Biocompatible Physical Sensor Research and Commercialization

4. Estimated Grant Funds to Request: \$2,000,000

5. Collaborators:

Orbital Research, Inc.; 4415 Euclid Ave., Suite 500, Cleveland, OH 44103-3733

6. Project Summary: Please see attached.

Should you have any question regarding this letter of intent, please do not hesitate to contact me at your earliest convenience.

Sincerely,

Ahalapitiya H. Jayatissa

College of Engineering

Mechanical, Industrial and Manufacturing Engineering • Mail Stop 312 • 2801 W. Bancroft St. • Toledo, Ohio 43606-3390
419.530.8210 Phone • 419.530.8206 Fax • www.mime.eng.utoledo.edu



Project Summary:

The proposed project will focus on the development of facilities and equipment that enable rapid development and fabrication of materials and devices needed for advanced biocompatible sensors. Specifically, the proposed project is to develop high performance micromachined biocompatible sensors for monitoring physical properties, such as pressure, temperature, acceleration, air flow, and chemical composition. Micromachined physical sensors have worldwide applications in many fields, including medicine, biology, environment monitoring, agriculture, household, security, alternative energy, and the military. Orbital Research, Inc. is experienced in the development and marketing of advanced sensors and wireless monitoring devices, making it a natural partner with The University of Toledo for the proposed project.

As the part of this project, fabrication processes will be developed for commercial production of surface acoustic wave (SAW) based physical sensors that have extremely high sensitivity, multi-functionality, and biocompatibility. In addition, the team is also planning to develop manufacturing process for commercial micromachined accelerometer based sensors. This project will involve a wide range of engineering and scientific research and development (R&D) activities associated with the commercialization of biocompatible sensors.

The proposed project builds on the expertise of the team members in the field of electronic material processing and sensor fabrication technologies. The team members have significant experience and background studies relevant to the proposed project in the recent past. Because of the partnership with Orbital Research, Inc., this project brings numerous opportunities, such as synthesis of materials, designing and fabrication of sensors, demonstration of prototype devices, optimization, and product commercialization. It is expected that this project will generate new employment opportunities in advanced technologies, training of the next generation in advanced sensor development, and high-tech device manufacturing capabilities in Ohio.

College of Engineering

From: Ken Lee OSU [lee.133@osu.edu]
Sent: Tuesday, November 30, 2010 11:54 AM
To: OTFWPP2011
Cc: dave.Beck@eisc.org; Carol Wedding; myers.603@osu.edu; barber.122@osu.edu
Subject: 2011 OTFWPP LOI
Attachments: LOI-plasma.pdf

Importance: High

The Ohio State University is pleased to submit the attached letter of intent to the Wright Project competition for fiscal year 2011. We anticipate high wage Ohio employment and economic advancement with this innovative electronic technology.

Prospective Lead Applicant: The Ohio State University Research Foundation
1960 Kenny Road, Columbus, OH 43210-1063

Lead Applicant's Name: Professor Ken Lee, Director

Address: The Food Innovation Center
2015 Fyffe Road, Columbus, OH 43210-1007

Phone: 614.292.7797

Email: Lee.133@osu.edu

Known Collaborators: The Center for Innovative Food Technology, Toledo, Dave Beck CEO. Imaging Systems Technology, Toledo, OH, Carol Wedding CEO. The Ohio Bioproducts Innovation Center, Steven Myers, Director.

Anticipated Request: \$2 million

Title: Commercial applications of electronic microwave plasma to Ohio consumer products.

Project: The Plasma Microwave advances Ohio's strategic investment in on Instruments- Controls- Electronics. This is a practical application of microwave electronics and plasma physics to several existing or new industrial applications. Imaging Systems Technology has critical expertise in plasma systems. The Center for Innovative Food Technology has important industrial networks. The Ohio State Food Innovation Center and Ohio Bioproducts Innovation Center have research expertise needed to debut this technology. This team has the proper combined facilities, research and network in Ohio to ensure commercial development. A goal of this project is to build a strong research capability within Ohio. This provides the capital infrastructure to enable adoption of the technology by key Ohio industries. Education components of this project support development, deployment and workforce development with this technology and anticipated spinoffs. Ohio State will help Ohio industries adopt the technology to their specific commercial application. CIFT-Toledo will help Ohio industries develop practical business plans using the technology to succeed in national and global markets. We anticipate development of several consumer products and applications, providing appreciable income and employment multipliers within the Ohio economy. Significant market development and Ohio job creation results within the growth phase of this technology.

Professor Ken Lee, Director for OSU Food Innovation v.614.292.7797 f.614.292.0218 <http://fst.osu.edu/lee>
cell.614.202.1135 <http://fic.osu.edu>



Tuesday, November 30, 2010

Third Frontier Wright Project LOI
Ohio Department of Development
77 South High Street, Columbus, OH 43215

By email: OTFWPP2011@development.ohio.gov
Subject: 2011 OTFWPP LOI

The Ohio State University is pleased to submit this letter of intent to the Wright Project competition for fiscal year 2011. We anticipate high wage Ohio employment and economic advancement with this innovative electronic technology.

Prospective Lead Applicant: The Ohio State University Research Foundation
1960 Kenny Road, Columbus, OH 43210-1063

Lead Applicant's Name: Professor Ken Lee, Director

Address: The Food Innovation Center
2015 Fyffe Road, Columbus, OH 43210-1007

Phone: 614.292.7797

Email: Lee.133@osu.edu

Known Collaborators: The Center for Innovative Food Technology, Toledo, Dave Beck CEO.
Imaging Systems Technology, Toledo, OH, Carol Wedding CEO.
The Ohio Bioproducts Innovation Center, Steven Myers, Director.

Anticipated Request: \$2 million

Title: Commercial applications of electronic microwave plasma to Ohio consumer products.

Project: The Plasma Microwave advances Ohio's strategic investment in on Instruments- Controls- Electronics. This is a practical application of microwave electronics and plasma physics to several existing or new industrial applications. Imaging Systems Technology has critical expertise in plasma systems. The Center for Innovative Food Technology has important industrial networks. The Ohio State Food Innovation Center and Ohio Bioproducts Innovation Center have research expertise needed to debut this technology. This team has the proper combined facilities, research and network in Ohio to ensure commercial development. A goal of this project is to build a strong research capability within Ohio. This provides the capital infrastructure to enable adoption of the technology by key Ohio industries. Education components of this project support development, deployment and workforce development with this technology and anticipated spinoffs. Ohio State will help Ohio industries adopt the technology to their specific commercial application. CIFT-Toledo will help Ohio industries develop practical business plans using the technology to succeed in national and global markets. We anticipate development of several consumer products and applications, providing appreciable income and employment multipliers within the Ohio economy. Significant market development and Ohio job creation results within the growth phase of this technology.

Respectfully submitted,

Ken Lee, Professor and Director, Ohio State University Food Innovation Center

From: George Huang [george.huang@wright.edu]
Sent: Tuesday, November 30, 2010 12:10 PM
To: OTFWPP2011
Cc: 'Jackie Frederick'; 'Larry Dossier'; 'Robinson, Garald'; 'Jack Bantle'; 'Ellen Reinsch Friese'; 'yan zhuang'; 'Lang Hong'; 'Kefu Xue'; 'Bor Jang'; 'Hong Huang'; 'Haibo Dong'; 'Adrian P. Lauf'; 'Beran, Philip S Civ USAF AFMC AFRL/RBSD'; 'Perkins, Leslie S Civ USAF AFMC AFRL/RB'; 'Hatfield, Michael C Col USAF AFMC AFRL/RB'; 'Donald.Paul@WPAFB.AF.MIL'
Subject: 2011 OTFWPP LOI

LETTER OF INTENT

Subject: 2011 Ohio Third Frontier Wright Projects Program LOI

Date: November 29, 2010

Lead Applicant: Wright State University

Contact Name: George P.G. Huang, Ph.D.
Phone (937)775-5040; E-mail: george.huang@wright.edu
Department of Mechanical and Materials Engineering
3640 Col. Glenn Highway, Dayton, OH 45435

Title: Research, Development and Commercialization of Micro Air Vehicle Platforms in the Miami Valley

Funds requested: \$3,000,000

Known Collaborators: Alliant Techsystems Inc. (ATK), the Mound Laser and Photonics Center Inc., and the Wright-Patterson Air Force Research Laboratory

Summary:

The Wright State University Center for Micro Air Vehicle Studies (CMAVS), in conjunction with ATK, the Mound Laser and Photonics Center (MLPC), and the Wright-Patterson Air Force Research Laboratory (WPAFRL), envisions the development and improvement of existing in-house-developed micro air vehicle (MAV) technologies to yield a high-performance, ultra-small-scale, bio-inspired, intelligent aircraft that can meet new challenges presented by both commercial and military applications. Recently recognized as a Center of Excellence, CMAVS is a pioneer in the design and advancement of flapping-wing-style MAVs.

This proposal seeks to secure funding for high-precision machinery and graphene-based materials and device technologies to be used in improving upon existing designs by reducing both scale and weight, and increasing power, agility and speed to maximize the platform's large potential. With ample usage scenarios in both private and government sectors, the MAV platform is designed to be both commercially-viable and effective. Furthermore, because of collaboration established between CMAVS, commercial partners and the WPAFRL, the groundwork has been laid to allow for the establishment of significant contributions to employment in the Dayton Area. By targeting full in-state development of frames, wings, assemblies, and electronic components, our proposed research and development strategy would prove to be a valuable asset to the Ohio and its constituent communities by providing high-tech jobs and research opportunities in an exciting and ever-expanding field.

Regards,

George

=====

George P.G. Huang, P.E.
Director of Ohio Center of Excellence for Micro Air Vehicle Studies
Professor and Chair
Department of Mechanical and Materials Engineering
Wright State University
3640 Colonel Glenn Hwy.
Dayton, OH 45435-0001
USA
(937)775-5040 (voice)
(937)775-5082 (fax)

Hansen, Andrew

OTFWPP 11-438

From: Melanie Hughes [office@ohiobiomedimaging.com]
Sent: Tuesday, November 30, 2010 12:14 PM
To: OTFWPP2011
Cc: 'Prof. Dr. Michael V. Knopp'; office@wcibmi.org
Subject: 2011OTFWPP LOI
Attachments: LOI_OTFWPP_112910_V04.docx

Please find attached an LOI in response to the Ohio Third Frontier Wright Projects Program on behalf of The Ohio State University.

Sincerely,

Melanie Hughes

Assistant to Dr. Michael Knopp
The Ohio State University Medical Center
Department of Radiology
395 W. 12th Avenue, Room 424
Columbus, OH 43210
office@wcibmi.org
p: 614.293.9998
f: 614.293.9275

Ohio Third Frontier Wright Projects Program

Letter of Intent The Ohio State University

Lead Applicant: The Ohio State University Office of Sponsored Programs
1960 Kenny Rd.
Columbus, OH 43210

Proposal Title: **Center for Biomedical Safety in Devices
and Therapeutics**

Budget Request (Estimated):

Capital:	\$2,500,000
<u>Operating:</u>	<u>\$ 500,000</u>
TOTAL:	\$3,000,000

Collaborators: **Battelle Health and Life Sciences**

Contact OSU: Michael V. Knopp, MD, PhD
The Ohio State University
Wright Center of Innovation in Biomedical Imaging and
the Ohio Imaging Research and Innovation Network
395 W. 12th Ave, Room 430
Columbus, OH 43210
Phone: 614-293-9998
Fax: 614-293-9275
Email: knopp.16@osu.edu

Contact Battelle: Herbert S. Bresler, PhD
Battelle Health and Life Sciences
505 King Avenue
Columbus, OH 43201
E-mail: breslerh@battelle.org

The proposed Center will focus on a recently identified strategic opportunity to enable and accelerate commercialization in Biomedical Safety in Devices and Therapeutics. Ohio's commercial entrepreneurs in biomedicine need safety assessments for the products and services they provide, distribute and manufacture as well as access to innovative technologies and services to accelerate product development and improve product safety. This need is not specific to Ohio, but rather a global opportunity which thereby creates both a substantial commercial opportunity for Biomedical Safety technologies and services as well as provides readily accessible local expertise and services that are supportive and enabling of Ohio's biomedical and other technological industries. This Center will build upon Ohio's capabilities and help create an additional innovative academia-industry environment to strengthen Ohio's commercial and economic opportunities.

Hansen, Andrew

OTFWPP 11-439

From: Joseph.Haus@notes.udayton.edu
Sent: Tuesday, November 30, 2010 1:29 PM
To: OTFWPP2011
Cc: Cusumano Salvatore J Civ USAF AETC AFIT/ENP; Whiteley Matthew
Subject: 2011 OTFWPP LOI
Attachments: LOI OTF WPP 2011 University of Dayton.pdf

Importance: High

Dear Madam/Sir:

Please find attached our Letter of Intent file submission for the Ohio Third Frontier Wright Projects Program. This version supercedes the Letter I emailed at 12:43 PM today. Please accept my apology for any confusion this may cause.

Thank you for your understanding.

Sincerely,

Joseph W. Haus, Director
Electro-Optics Program
University of Dayton
Dayton, OH 45469-2951
Tel: (937) 229-2797
Cell: (937) 554-3108
Email: jwhaus@udayton.edu



November 30, 2010

Ohio Department of Development
Technology and Innovation Division
77 South High Street, 25th Floor
Columbus, OH 43215
OTFWPP2011@development.ohio.gov

SUBJECT: Letter of Intent for 2011 Ohio Third Frontier Wright Projects Program

Dear Sir or Madam:

The University of Dayton is pleased to submit this Letter of Intent for the Fiscal Year 2011 Wright Projects Program Request for Proposal.

Information for this project is as follows:

1. Lead Applicant: University of Dayton
Ladar and Optical Communications Institute
300 College Park, Dayton, OH 45469-2951
Tel.: (937) 229-2797
2. Contact person: Dr. Joseph W. Haus, Director, Electro-Optics Program and LADAR and Optical Communications Institute (LOCI) ; Email: jwhaus@udayton.edu
3. Project title: Adaptive Imaging Telescope Module Commercialization
4. Estimated Grant Funds requested: \$1.5 million
5. Collaborating Organizations

University of Dayton Electro-Optics Program and LADAR and Optical Communications Institute (LOCI)
Center for Directed Energy, Air Force Institute of Technology (AFIT), WPAFB
Dayton Area Graduate Studies Institute (DAGSI)
MZA Associates, Beavercreek, OH

6. Proposed Project and Commercialization Goals:

We will present a commercialization path to capitalize on the emerging technology of adaptive optics. The project will develop and commercialize a compact, self-contained adaptive optics system containing a camera and adaptive optics elements. The system is easily mounted onto telescopes or it can replace cameras currently used for surveillance. The adaptive optics units can be mounted within instruments that will benefit from an improvement in image clarity.

The adaptive optics product will be capable of correcting static and time varying distortion effects that degrade imagery. MZA has developed a cost-effective and simple adaptive optics deformable mirror component that will be integrated into a system product and commercialized under this project. The potential markets span civilian, DoD, and medical uses. The civilian markets will be firms performing surveillance for homes and businesses. Applications to other civilian markets include free space laser communications and amateur astronomy, where it is desirable to use adaptive optics to remove atmospheric effects from their data. Government uses of the product include border surveillance by Homeland Defense and area surveillance for military base defense. Medical uses include insertion into eye examination instrumentation for improved imagery of the retina.

The buildup of commercialization capabilities includes outreach programs to increase the student census at AFIT and UD within their graduate optics programs. As an active participant of DAGSI, the students at AFIT and UD have access to the optics and sensor programs at DAGSI-participating universities. In summary, the commercialized product will generate state-of-the art instruments, increases in the graduate student census, and highly trained technical professionals for area industry.

7. The University of Dayton has been a strong provider of highly skilled jobs for the state of Ohio. The contributions include the University of Dayton's Research Institute and, more recently, LOCI. Our collaboration with AFIT under DAGSI has established a foundation for future growth in the applications of optical research. Our intent with this project is to build on this solid foundation with the business acumen of MZA in adaptive optics and provide a path to eventually establish the Dayton area as the capital of optical research, development, and fabrication in the United States. The proposal we intend to submit will be a big step toward this goal.

We look forward to helping grow commerce and jobs in Ohio under the auspices of the Ohio Third Frontier.

Sincerely,



Joseph W. Haus, Ph.D.

From: braaschm@gmail.com on behalf of Michael Braasch [braaschm@ohio.edu]
Sent: Tuesday, November 30, 2010 12:44 PM
To: OTFWPP2011
Cc: Shane Gilkey; Frank van Graas; Zofia Starzyk; Dean Bruckner; Jade Morton
Subject: 2011 OTFWPP LOI
Attachments: LOI_Ohio_Univ_AEC_final.pdf

Greetings: Attached please find Ohio University's letter of intent to submit a proposal under the 2011 Ohio Third Frontier Wright Project Program.

Best regards,

Michael Braasch

--

Michael S. Braasch, Ph.D., P.E., ION Fellow
Director, Avionics Engineering Center
Thomas Professor of Engineering
239 Stocker Center
Ohio University
Athens, OH 45701-2979
Ph: 740-593-0105
Fax: 740-593-1604
email: braaschm@ohio.edu

**Letter of Intent
Ohio Third Frontier Wright Project Program
Fiscal Year 2011**

Lead Applicant's Name: Ohio University

Lead Applicant's Address: Research & Sponsored Programs
Research and Technology Center 105
Athens, OH 45701-2979

Lead Applicant's Phone: 740-593-9813

Contact Person: Shane L. Gilkey, Asst. Vice President for Research
Email: gilkeys@ohio.edu

Proposed Project Title: Multi-Sensor RF-Transparent Calibration and Testing
Facility for Positioning, Navigation and Timekeeping
Systems

Estimated Funds to be Requested: \$2,500,000

Known Collaborators: Trimble Navigation
Dayton, Ohio

Miami University
Oxford, Ohio

Project Summary

Principal Investigators: Michael S. Braasch, Ph.D., P.E. and Frank van Graas, Ph.D.

The ability to navigate has been of critical importance to mariners, merchants and the military for thousands of years. Until recently, the ability for ordinary individuals to navigate simply equated to the ability to read a map. However, the proliferation of GPS-enabled devices has changed the map-reading paradigm forever. Virtually every smartphone and PDA carries the ability to determine position and provide directions to a desired destination.

Users of these devices will readily admit, though, that they do not always work well or at all. Often the satellite signals are blocked by buildings or other obstructions or are subjected to interference from other radio sources. Along with the 'man on the street,' the military continues to be in need of precise positioning, navigation and timekeeping. Urban areas of operation provide the same challenges to military GPS users along with civilian users. It has become increasingly apparent that GPS must be supplemented and/or augmented by other means to ensure seamless navigation capability. A variety of techniques have been investigated most of which utilize some combination of electro-optics (e.g., cameras), LADAR (laser version of radar) and inertial measurement sensors (accelerometers and gyroscopes).

Although this array of sensors holds the promise for seamless navigation, it also poses a significant challenge to the developers, evaluators and customers of such systems. In order to demonstrate system performance there is a need for testing. However, it is difficult to obtain a controlled environment when an urban area (e.g., a congested city) is needed. Furthermore, the vagaries of weather can make testing difficult or even impossible in some cases.

In this proposal, we seek to address the aforementioned challenge by developing a multi-sensor positioning, navigation and timekeeping test facility. The facility will comprise two major components. One will be a football-field sized structure with an RF-transparent roof. The structure will be capable of simulating, for example, urban canyon environments for testing the aforementioned navigation techniques in conjunction with realistic GPS blockage and partial-blockage scenarios. The structure will also house test tracks enabling the simulation of dynamic vehicle scenarios. The second component of the facility will be an outdoor test range capable to support testing and calibration of airborne-based electro-optic and laser sensors. A highly precise truth reference system (i.e., centimeter-level accuracy) will also be provided for both the indoor and outdoor facility components.

This facility will be available for Ohio-based companies to test and evaluate their multi-sensor positioning, navigation and timekeeping products, both military and civil. It will also provide training opportunities for undergraduate and graduate students to ensure that Ohio-based companies have a skilled talent pool from which to grow their workforce.

Hansen, Andrew

OTFWPP 11-441

From: Abbott, Jason [Jason.Abbott@tri-c.edu]
Sent: Tuesday, November 30, 2010 12:44 PM
To: OTFWPP2011
Cc: Snape, Kevin
Subject: 2011 OTFWPP LOI
Attachments: Updated LOI.doc

Good Afternoon,

Attached please find Cuyahoga Community College's Letter of Intent for the ODOD Third Frontier Wright Project.

Please let me know if you need additional information.

Have a great day.

Jason M. Abbott
Director, Development
Cuyahoga Community College
Phone: 216-987-4847
Fax: 216-987-4792

Wright Project Letter of Intent
November 29, 2010

Lead Applicant:

Cuyahoga Community College
2900 Community College Dr.
MBA 216
Cleveland, OH 44115

Contact Person:

Dr. Kevin Snape
Kevin.Snape@tri-c.edu
216-987-3208

Proposed Project title: Addressing Commercialization Barriers through the Development of a Smart Grid Test Facility

Estimated Grant Funds to be requested: \$1.6MM for a project budget of \$3.2MM

Known Collaborators:

ADI Wind
Studio Techno
IGEN
Intwine
Tremco/RPM

Project Summary:

Cuyahoga Community College (Tri-C), through support of the Ohio Department of Development's Third Frontier funding, is looking to move its corporate partners into commercialization for their alternative energy technologies through the *Addressing Commercialization Barriers through the Development of a Smart Grid Test Facility* project. These partners have indicated that one of the largest barriers in getting their products to market is the absence of a test facility to evaluate the technology and its effectiveness in relation to other products on the market.

Cuyahoga Community College proposes the creation of a test bed that will include a geothermal field, photovoltaic panels, fuel cells, and wind turbines to create a working smart grid for renewable power and grid control strategies. Additionally, we will be developing and deploying education and job training around the critical aspects of smart grid deployment and alternative energy technologies.

Successful completion of the project has three major benefits. First, Tri-C will initiate an economic development tool through the creation of a test bed. Specifically, companies will be able to test their components and designs in advance of taking them to market. Second, Cuyahoga Community College will have a template for Smart Grid deployment, which should dramatically increase the speed of implementation and finally, begin the development of a 21st century energy workforce capable of managing the emerging grid.

In addition to moving products forward into commercialization, this project seeks to address the two underserved portions of the Smart Grid concept; the Smart Home and the distributed renewable power grid. The project seeks funding to build a Smart Home on one of our campuses to fully realize Home Area Network (HAN), and connect it to multiple renewable energy sources allowing the home network to choose the lowest cost electron at any given moment. The realization of this Smart Grid project will allow Tri-C to offer three very important contributions to the evolution of this technology.

1. This will offer one of the first comprehensive demonstrations of what a Smart Home and Smart Grid could accomplish.
2. This facility will offer a very significant instructional tool for the advanced energy workforce, which the state of Ohio has repeatedly stated as a goal. Specific educational outcomes include Energy Cyber security, advanced building technologies, advanced energy system installation (fuel cells, solar PV, solar thermal, wind turbines and storage technologies), building and tuning a Home Area Network and Smart Utility Meter Installation.
3. Finally, this system will serve as a test bed for home based technologies (energy management systems, smart chips, smart appliances) and for renewable generation systems (components for turbines, solar systems, fuel cells etc). The goal of this test bed will be to conduct commercial evaluation tests providing developers a third party evaluation (market readiness) of their technology as they prepare for market launch. Currently, almost all of the test bed capacity is for early stage technology development with limited availability for the advanced energy industry to access reliable testing. Cuyahoga Community College, with test bed partner IGEN, will be able to provide this service significantly improving Ohio's claim to become a center for the development and commercial deployment of advanced energy technologies.

Hansen, Andrew

OTFWPP 11-442

From: Traci Spencer [SPencer@TechSolve.org]
Sent: Tuesday, November 30, 2010 1:11 PM
To: OTFWPP2011
Subject: 2011 OTFWPP LOI
Attachments: TechSolve_2011-OTFWPP-LOI.pdf

Importance: High

To whom it may concern:

Thank you for the opportunity to submit the attached 2011 Ohio Third Frontier Wright Projects Program letter of intent, in PDF format, on behalf of TechSolve and its collaborators GBI Cincinnati and the University of Cincinnati. The title of our proposed project is "Development and Commercialization of Revolution Mill-Turn Machine Tools Using Open Architecture Controller for Aerospace/Aviation Complex Part Manufacturing".

If you have any questions or concerns, please don't hesitate to contact me.

Traci Spencer
Program Development and Grants Administrator

TechSolve, Inc.
6705 Steger Drive
Cincinnati, Ohio 45237-3097
spencer@techsolve.org
P: 513.948.2053
P: 800.345.4482
C: 513.582.4745
F: 513.948.2109
<http://www.techsolve.org>

November 30, 2010

The Ohio Department of Development
Technology and Innovation Division
77 South High Street, 25th Floor
Columbus, OH 43215
Attn: OTFWPP2011@development.ohio.gov

SUBJECT: TechSolve's Ohio Third Frontier Letter of Intent for "Development and Commercialization of Revolution Mill-Turn Machine Tools Using Open Architecture Controller for Aerospace/Aviation Complex Part Manufacturing"

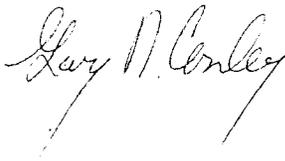
TechSolve, Inc. will be submitting a proposal to the State of Ohio Third Frontier Wright Projects Program for the development and commercialization of a new mill-turn machine tool using the open architecture Revolution controller with integrated dynamic performance, communication, and self-diagnostics capabilities for the aerospace and aviation industry.

The proposal will be submitted on behalf of the lead applicant TechSolve, Inc. in collaboration with University of Cincinnati and GBI Cincinnati, Inc.

The goal of the project is to develop and commercialize the Revolution mill-turn machine tool series using the open architecture MTI controller. The advanced capabilities of the industry leading control technology include: processing power of 50,000 blocks per second in an 8-axis application; constant velocity controller; large amounts of data-handling efficiency; up to 80 smart buffers; and integrated end-user applications. These functionalities will result in significantly improved tool life, dynamic responsiveness, and better part finish which are all critical to the production of aerospace components. MTConnect compatibility will ensure industry-wide applications, easier integration, and commercial viability.

TechSolve will seek \$2.5M in funding from the State of Ohio.

Sincerely,



Gary Conley
President

OTFWPP Proposal Lead Applicant Contacts:

Jon Iverson
EVP- Machining Group
TechSolve, Inc.
6705 Steger Dr.
Cincinnati Ohio 45237
Phone: 513.948.4433
Fax: 513.948.2109
iverson@techsolve.org

Amit Deshpande
Engineer
TechSolve, Inc.
6705 Steger Dr.
Cincinnati Ohio 45237
Phone: 513.948.2118
Fax: 513.948.2109
deshpande@techsolve.org

TechSolve OTFWPP Collaborators:

GBI Cincinnati – Cincinnati, Ohio
University of Cincinnati – Cincinnati, Ohio

“Development and Commercialization of Revolution Mill-Turn Machine Tools Using Open Architecture Controller for Aerospace/Aviation Complex Part Manufacturing”

The goal of this project is to develop and commercialize the Revolution mill-turn machine tool series using the open architecture MTI controller. The Revolution is the new series of machines from GBI Cincinnati who already offer a line of high-performance milling machines and is seeking to dramatically enhance the capability of mill-turn machine tools by addressing the challenges faced by the aerospace industry and other manufacturers that machine complex geometry parts. GBI's new technology, resulting from this proposal, will significantly bolster Ohio's leadership in the aerospace industry which, at 100,133 direct full-time workers, aerospace is the second largest of Ohio's targeted technology industries.

The new Revolution machine will be equipped with self-diagnostics/tuning capabilities that provide exceptional dynamic performance, modulated tool-path chip breaking for performance enhancement, and a predictive quality system which is currently lacking in today's mill-turn technology. The advanced capabilities of the controller technology will include: processing power of 50,000 blocks per second in an 8-axis application; constant velocity controller; large amounts of data-handling efficiency; up to 80 smart buffers; and integrated end-user application. These functionalities will result in improved tool life, better part finish, less drive and motor wear, and life extension of the machine tool. MTConnect compatibility will ensure industry-wide applications, easier integration, and commercial viability.

From: Shari Plimpton [splimpton@eisc.org]
Sent: Tuesday, November 30, 2010 1:16 PM
To: OTFWPP2011
Cc: Dave Beck; Ken Lee; Carol Wedding; Stephanie Smith
Subject: 2011 OTFWPP LOI
Attachments: WP LOI 112410.doc

Dear Reviewer:

We submit this letter of intent to indicate our interest in applying for funding through the Ohio Third Frontier Wright Projects Program for fiscal year 2011.

All required information is on the attached letter of intent. Please contact me if you have any questions or difficulties opening the file.

--

Best regards,
Shari

--

Shari L Plimpton, Ph.D.
Director - Industry Outreach
CIFT
7003 Post Road, Suite 404
Dublin, Ohio 43016

614-314-4627
Fax: 419-531-8465

**Letter of Intent to Submit a Proposal for Funding
From the
Ohio Third Frontier Wright Projects Program
Fiscal Year 2011 Request for Proposals**

Lead Applicant: CIFT (Center for Innovative Food Technology)

Address: 5555 Airport Highway, Suite 100, Toledo, OH 43615

Contact Person: Shari Plimpton, PhD, Program Manager - Industry Outreach

Phone Number: 419-535-6000, 614-314-4627

E-mail: splimpton@eisc.org

Project Title: Plasma Enhanced Microwave Oven

Estimated Grant Funds: \$1,500,000

Collaborators: The Ohio State University,
Department of Food Science & Technology
Columbus, Ohio

Imaging Systems Technology Inc.,
Toledo, Ohio

Summary:

A revolutionary series of discoveries by IST engineers has enabled common microwave heating to reach unprecedented levels of heat in remarkably short times. The novel Plasma Enhanced Microwave Oven (PEMO) is consistent with Ohio's stated focus on Instruments-Controls-Electronics. The proposed technology applies precisely controlled microwave electronics to the basic principles of plasma physics to achieve a revolutionary heating system that can be used for a number of industrial applications including heat treatment/carburization, efficient thermal processing, and industrial coatings.

Under this Wright Project, IST will collaborate with the Center for Innovative Food Technologies (CIFT) and The Ohio State University, Food Innovation Center (FIC) to debut this technology to the food industry. CIFT, the lead organization, is a not for profit organization in Toledo, Ohio. CIFT's mission is to help members of the business sector improve their competitive position through the development and adaptation of emerging technologies, industry best practices, and novel business approaches. OSU also has a strong capability and focus on food. OSU has recently invested \$3.75 million in a Food Innovation Center with a mission of research and outreach for Ohio, consistent with the new statewide center of excellence in food and agriculture. This team will use its combined facilities, infrastructure, industry connections and technical expertise to ensure effective and rapid commercial development.

A major goal of this project is to build a strong research capability within Ohio based on the PEMO technology to support the state's largest manufacturing sector, the food industry. This proposed Wright Project supports the goal by providing the capital equipment infrastructure that enables adoption of the technology by Ohio industries. The existing industry and academic network of CIFT and OSU will achieve an entrepreneurial and commercial purpose by connecting potential end users to this innovative new technology. These partners also ensure continued training and education of the current and future workforce supporting development, deployment and future product development with this new technology. The PEMO technology has special application to the food industry including:

- High temperature, short time food processing
- Meat can go from frozen to fully cooked in 45 seconds
- Control of texture including crisping and browning of surfaces
- High speed coating and glazing of surface
- Sterilization and decontamination
- Reduce the amount of carcinogenic substances in fried foods

Within three years of the start of this project we intend to have fully functional, pilot-scale or commercial process scale equipment strategically located at the CIFT Toledo and OSU Columbus. These try-before-you-buy locations enable potential end users to explore new applications with no obligation, supported by resident expertise at both locations. The existing research infrastructure of Ohio State will help Ohio industries adopt the PEMO technology to their specific commercial application. The existing commercialization infrastructure of CIFT-Toledo will help Ohio industries develop practical business plans using the PEMO technology to succeed in national and global markets.

These sites will provide continuous benefit beyond the three-year duration of this Wright Project. Annual technology implementation workshops will be supported by leveraged resources and user fees to continuously educate Ohio industries on PEMO applications. We anticipate adoption of this new technology to approximate the same pattern established by the traditional and relatively limited microwave heating technology, where very limited use was followed by explosive growth placing a microwave oven now in almost every American household. Following this pattern, there will be concomitant development by suppliers of a full array of PEMO consumer products, providing appreciable income and employment multipliers for the Ohio economy. Excellent potential for new market development and Ohio job creation results during the explosive growth phase of this technology.

Hansen, Andrew

OTFWPP 11-444

From: Daniel Ereditario [deredita@lorainccc.edu]
Sent: Tuesday, November 30, 2010 1:21 PM
To: OTFWPP2011
Cc: Tracy Green
Subject: 2011 OTFWPP LOI
Attachments: Lorain-County-Community-College-2011-OTFWPP-LOI.pdf

Dear Madam or Sir:

On behalf of Mrs. Tracy Green, Director of the Lorain County Community College Foundation, please find the attached pdf of LCCC's LOI for the 2011 Ohio Third Frontier Wright Project Program. Please confirm receipt of the attached pdf.

Thank you.

Daniel Ereditario
Lorain County Community College Foundation



November 30, 2010

Ohio Department of Development
Technology and Innovation Division, Attention: OTFWPP
77 South High Street, 25th Floor
Columbus, OH 43215
via email: OTFWPP2011@development.ohio.gov

Re: 2011 OTFWPP LOI

Dear Madam or Sir:

On behalf of Lorain County Community College and our teaming partners, I am delighted to submit this letter of intent to apply for funding through the Ohio Department of Development’s Wright Projects RFP. The proposed project, **Packaging and Inspection for Quality Control of MEMS BioSensors**, will leverage the resources of the SMART Commercialization Center on the campus of Lorain County Community College to help accelerate the commercialization of MEMS BioSensors being developed in Northeast Ohio, with target for market entry in three years. Support provided by the Ohio Third Frontier under the Wright Project RFP will enable these developing technologies to acquire the necessary equipment and operational support to finalize prototyping of sensor enhanced/enabled biomedical devices, and conduct reliability testing. The SMART Commercialization Center is an open source for university and industry partners to access state-of-the-market equipment and support in sensor packaging, reliability testing, and product life simulation. Equipment funded through this project will be housed in at this Center for use in this project and made available to other industry partners as well as students for education and training. The proposed project will leverage the resources of the center to support quality control in the manufacture of biomedical MEMS-based sensors.

Envisioned collaborators for this project include, but not limited to:

<u>Industry Partner</u>	<u>Key Primary Scientific/Technical Field</u>
Clear Image	Micro-packaging for stacked devices, inspection techniques for vendor qualification
Swallowing Solutions	Subcutaneous dysphagic sensor, stress testing package in mucosal environment
US Endoscopy	Endoscopic surgical tools, reliability tests on alternative fabrication techniques



*Lorain County
Community College*

The Lorain County Community College is the lead applicant for this proposal:

Lead Applicant Name:	Lorain County Community College
Lead Applicant Address:	1005 Abbe Road North, Suite 220, Elyria, Ohio 44035
Lead Applicant Phone Number:	440-366-4039
Lead Applicant Contact:	Tracy A. Green, Director, Lorain County Community College Foundation
Contact's Phone Number:	440-366-4039
Contact's Email Address:	tagreen@lorainccc.edu
Proposed Project Title:	Packaging and Inspection for Quality Control of MEMS BioSensors
Estimated Grant Funds to be Requested:	\$2.4-\$2.6 million
Known Collaborators:	As above

Thank you for this opportunity. Lorain County Community College has a solid history of partnership and collaboration with local community, industry, and the commercialization infrastructure of the State of Ohio. I am excited to pursue an expansion of our collaboration through this potentially transformational opportunity for Ohio's economy.

Sincerely,

Tracy A. Green
Director, Lorain County Community College Foundation

Hansen, Andrew

OTFWPP 11-445

From: Alexis Abramson [alexis.abramson@case.edu]
Sent: Tuesday, November 30, 2010 1:28 PM
To: OTFWPP2011
Cc: 'Leon A. Polott'; 'Max Lewis'; 'Mike M. Cameron'; 'Phillip Smith'; 'S P Weeks'; 'KARL-HEINZ SCHOFALVI'
Subject: 2011 OTFWPP LOI
Attachments: LOI Wright Project - CWRU - Abramson.pdf

Please find attached our Letter of Intent for the 2011 OTFWPP titled "Investigation of nanostructured titania; structure-property relationships versus production techniques and dopant molecular manipulation" submitted by CWRU (lead applicant) along with our collaborators Sherwin Williams and AlSher Titania.

Alexis R. Abramson, Ph.D.
Associate Professor
nanoEngineering Laboratory
Mechanical and Aerospace Engineering
Case Western Reserve University
Cleveland, OH 44106-7222
Phone: 216-368-4191
Fax: 216-368-3007
alexis.abramson@case.edu
www.case.edu/nano



Contact Person: Alexis Abramson, Ph.D.
Associate Professor
Mechanical and Aerospace Engineering
Case Western Reserve University
10900 Euclid Ave.
Cleveland, OH 44106-7222
abramson@case.edu

November 30, 2010

Ohio Department of Development
Ohio Third Frontier
Columbus, OH 43215

To whom it may concern:

Please find herein described our letter of intent submitted as required for the Wright Projects Program for Fiscal Year 2011.

PROPOSED PROJECT TITLE: Investigation of nanostructured titania; structure-property relationships versus production techniques and dopant molecular manipulation.

ESTIMATED FUNDS REQUESTED: \$1,200,000

KNOWN COLLABORATORS: Case Western Reserve University, Sherwin Williams, AlSher Titania.

ONE PAGE SUMMARY OF PROPOSED PROJECT:

Overall the project will support the production of titanium dioxide nanoparticles which exhibit superior dispersion properties for introduction into coatings, polymers and composites - resulting in enhanced properties. Some of the targeted applications for these technologies are: highly photocatalytic nanotitania which when coated with organic agents and activated by UV light produce high capacity air purification system filters; nanostructured titania for thermal spray coatings to provide erosion and corrosion protection; and nanostructured UV stabilizing additives which exhibit superior dispersion qualities and superior UV protection of polymeric materials.

To best support the effort of the industrial scale production of these nanostructured systems, a deeper understanding of the structure-property relationship is sought. The effort has three focal points. First will be the lab scale production of the nanostructured powder. Equipment will need to be purchased or built that will simulate large scale spray dryers and plasma spray units and other possible proprietary production equipment. The second focal point will be the molecular manipulation of the nanostructured titania with dopants, surface active agents, coupling agents, organometallic additives and other agents intended to increase functionality to the desired application needs. Some new equipment is forecast to be needed to facilitate the lab scale production side of organic agent application as well as new equipment to

support the analysis. The last focal point is to examine the ability of the nanostructured material to be dispersed into a polymeric system. Here lab scale dispersing equipment will be needed that simulates the industrial environment.

The lead applicant (CWRU) is well equipped with analytical equipment and expertise to evaluate nanostructured materials from basic properties to thermal conductivity on individual nanostructures. There may, however, be a need to build or purchase some additional analytical equipment specific to evaluating the required properties of the industrial applications that this technology is targeting. Clearly the bulk of the funding will go to building the capabilities for synthesizing various nanostructures and to manipulate those structures with post molecular treatments.

Sincerely,

A handwritten signature in cursive script, appearing to read "Alexis R. Abramson".

Alexis R. Abramson, Ph.D.
Associate Professor, CWRU

Hansen, Andrew

OTFWPP 11-446

From: Maloney, Caroline [CMaloney@STARKSTATE.EDU]
Sent: Tuesday, November 30, 2010 1:32 PM
To: OTFWPP2011
Subject: 2011 OTFWPP LOI - Stark State College
Attachments: 11.30.10 Stark State LOI with Kohler - OTFWP.pdf

Attached please find our Letter of Intent for the Stark State College/Cargill/Kohler Coating Advanced Paper Materials Center project.



STARK STATE COLLEGE

Changing Lives ... Building Futures

Date: November 30, 2010

To: Ohio Department of Development
Technology and Innovation Division
77 South High Street, 25th Floor
Columbus, OH 43215
OTFWPP2010@development.ohio.gov

From: Stark State College of Technology
6200 Frank Avenue NW
North Canton, OH 44720

Subject: 2010 Third Frontier Wright Project Letter of Intent

Lead Applicant: Stark State College of Technology

Contact Person: Dorey Diab/Caroline Maloney
(330) 494-6170 ext 4266/(330) 494-6170 ext 4764
ddiab@starkstate.edu / cmaloney@starkstate.edu

Project Title: Advanced Paper Materials Center

Grant Funds to be Requested: \$3,000,000 OTF

Collaborators:

Grief Packaging Systems
425 Winter Road
Delaware, OH 43015
Contact: Chris Krumm
Chris.Krumm@corrchoice.com

Cargill Incorporated
15407 Mcginty Road West
Wayzata, MN 55391-2399
Contact: Larry Micek
Larry.Micek@cargill.com

Kohler Coating
10995 Wright Road
Uniontown, Ohio 44685
Contact: Herb Kohler
herbkohler@kohlercoating.com

Project Summary: See attachment

Respectfully Submitted,

A handwritten signature in cursive script that reads "Dorey Diab".

Dorey Diab, Ph.D.
Provost and Chief Academic Officer
Stark State College



STARK STATE COLLEGE

Changing Lives ... Building Futures

Advanced Paper Materials Center Project Summary

Corrugated paperboard is a \$25 billion industry in the U.S. that processes approximately 31 million tons of paper, consumes 977 trillion BTUs of fuel, and generates in excess of 91 million tons of CO₂. An average corrugated paperboard machine in the U.S. requires approximately 60,000 BTUs per 1,000 sq. ft of production. Industry energy consumption patterns are largely due to the fact that the manufacture of corrugated paperboard requires substantial energy to heat the board to typical operating temperatures over 300° F and to dry the adhesive that bonds the board. As the global energy paradigm shifts towards increased use of energy from renewable sources – while promoting decreased greenhouse gas (GHG) emissions – there is a strong need and potential to reduce energy use and CO₂ emissions by corrugated paperboard manufacturers.

The objective of the Corrugating Center of Excellence is to set up a pilot facility to enable the integrated development, optimization, and demonstration of transformative fiber treating, flute formation and fiber orientation technology and to increase efficiency and modernize production practices in the corrugated board industry. To achieve these project goals, Stark State College will work with Grief Packaging Systems, Cargill Inc., Kohler Coating, and the Stark Development Board (SDB) to develop and commercialize linear flute formation, fiber strengthening with adhesives, nano-particle barrier chemistries and new increased strength design as key enablers of this transformative technology. The Corrugated Paper Center of Excellence partnership will carry out final stage, development, demonstration and commercialization of Third-generation Reduced Energy/Weight Corrugated Packaging Technology (RE/WPT) to improve board strength by 50 percent, reduce energy consumption by 50 percent, reduce board weight by 50 percent, provide recyclable waterproof barrier capabilities without increasing weight, increase manufacturing speed by 60 percent and promote increased energy efficiency in corrugated board manufacturing. The corporate/academic partnership includes the suppliers of the key technologies, and a manufacturer of corrugated packaging interested in commercializing the new processes.

Preliminary research shows that successful implementation of these technologies by the U.S. corrugated industry will result in an estimated energy savings of 551 trillion BTUs (75 percent) and reductions in GHG outputs by 45.6 million tons annually. The private sector project team members have dramatically advanced the state-of-the-art and independently demonstrated viable solutions in each of these areas.

The proposed Corrugated Paper Center of Excellence is relevant to several of the Program's scientific fields of interest, including: 1) Advanced/Alternative Energy - through reductions in energy and material uses, 2) Instruments, Controls, and Electronics - via new process and control strategy development, and 3) Advanced Materials – engineered corrugated paperboard product.

Once developed, the RE/WPT process will be directly transferable and potentially impact approximately 6,000 corrugated paperboard manufacturing plants worldwide and the thousands of manufacturing companies that ship goods in corrugated boxes. In addition to the collaborative applied R&D activities to be undertaken with Stark State College, the partnership will develop academic fee-for-service, certificate, and degree programs that will make Ohio a training hub for all implementing U.S. and foreign corrugated manufacturers. The partnership takes advantage of an existing relationship between Stark State College, Kohler Coating, and SDB to create a Cargill presence in the State of Ohio with a potential initial investment of \$4.5 million to get the Corrugating Center of Excellence project underway.

SDB and Stark State College have collaborated in new business attraction efforts to grow industry clusters in our area and region (fuel cells). The proposed Corrugated Paper Center of Excellence will have a major impact on the corrugated paperboard industry and will also offer the opportunity for SDB to target manufacturing companies for expansion of operations in Stark County and the region. SDB will work closely with Stark State College, Kohler Coating, and other suppliers in marketing the benefits created by the Center of Excellence. This will be accomplished through direct marketing to consultants and manufacturers and through participation in corrugated paperboard trade shows. SDB will pledge \$10,000 dollars in matching funds and in-kind contributions to this effort over a three-year period.

The existence of the Center is expected to create 450 jobs with an average annual salary and benefits of \$45,000 in the community, generating \$2.9 million dollars in state income tax revenue. A total of 225 jobs will be created either directly at the facility, Kohler Coating or its local subcontractors, and the remaining created indirectly.

Hansen, Andrew

OTFWPP 11-447

From: Mark E. Walter [walter.80@osu.edu]
Sent: Tuesday, November 30, 2010 1:33 PM
To: OTFWPP2011; Matthew Seabaugh
Subject: 2011 OTFWPP LOI
Attachments: 2011OTFWPP_MarkWalter_OhioState.pdf

Dear Sir/Madame:

Please find an Ohio Third Frontier Wright Projects Program letter of intent attached. Feel free to contact me if you have any questions.

regards,
mark

--

g-----g
Dr. Mark Walter, Associate Professor of Mechanical Engineering The Ohio State University
E331 Scott Laboratory
201 W. 19th Avenue, Columbus, OH 43210
E-MAIL: walter.80@osu.edu TEL: 614-292-6081 FAX: 614-292-3163
<http://www.mecheng.osu.edu/people/mark-walter>
Advisor, OSU Solar Decathlon: <http://www.solardecathlon.osu.edu> g-----
-----g



Department of Mechanical
and Aerospace Engineering

E331 Scott Laboratory
201 West 19th Avenue
Columbus, OH 43210

Telephone: 614-292-6081
Telefax: 614-292-3163

E-Mail: walter.80@osu.edu

November 30, 2010

RE: Ohio Third Frontier Wright Project Program Letter of Intent

Dear Sir/Madame,

This letter expresses my intent to apply for Ohio Third Frontier Wright Project Program funds to further develop experimental facilities at the Ohio State University. The enhanced facilities would be used primarily to support research and development for improving NexTech Materials Ltd products.

Below is information requested for this letter of intent.

Lead Applicant and Contact Person:

Dr. Mark Walter, Associate Professor of Mechanical Engineering
E331 Scott Laboratory
Department of Mechanical Engineering
The Ohio State University
201 W. 19th Avenue
Columbus, OH 43210
E-Mail: walter.80@osu.edu
Phone: 614-292-6081
Fax: 614-292-3163

Project Title:

Enhancing Facilities for Characterization of Solid Oxide Fuel Cell Materials and Interfaces.

Funding Estimate: \$400k

Known Collaborator(s):

Dr. Matthew M. Seabaugh, Director of Commercial Services, NexTech Materials Ltd.

Project Description:

Improved durability and reliability of solid oxide fuel cell (SOFC) components and interfaces is necessary to achieve widespread commercialization of SOFCs. In addition to operating in high temperature, reducing and/or oxidizing environments, SOFC materials and assemblies must withstand stresses associated with thermal gradients and thermal cycling. Understanding and improving durability and reliability of SOFCs depends on being able to characterize the necessary materials and material interfaces.

The lead applicant is proposing to purchase equipment that will enhance existing facilities and thus enable OSU to further help NexTech Materials Ltd develop better SOFC products. The improved facilities will leverage existing collaborations with NexTech and lead to further external research funding in materials research. Equipment to be purchased includes the following:

- digital image correlation hardware and software for non-contact, full-field imaging of deformation and damage
- nano-indentation for characterization of thin films/coatings and non-homogeneous microstructures
- hardware and software for enabling x-ray residual stress measurements with existing x-ray diffractometers
- optical microscope for in situ observation of materials and components under load and temperature
- small-scale thermal and mechanical loading devices for use with optical and scanning electron microscopes

In addition to equipment purchases, up to 25% of the requested funds will be used to support students who will setup the facilities and train external users.

In summary, the proposed project will focus primarily on mechanics of materials research as it relates to SOFCs. Close collaboration with NexTech Materials will keep the work aligned with near-term product development and commercialization goals.

Please feel free to contact me if you have any questions.

Sincerely,



Mark E. Walter
Associate Professor
Department of Mechanical and Aerospace Engineering

Hansen, Andrew

OTFWPP 11-448

From: Michael Crifasi [mac302@case.edu]
Sent: Tuesday, November 30, 2010 1:34 PM
To: OTFWPP2011
Subject: 2011 OTFWPP LOI_CWRU_High Performance Hydrogen Plant to Supply 1MW Fuel Cell
Attachments: 2011 OTFWPP LOI_CWRU_High Performance Hydrogen Power Plant.pdf

Dear Ohio Department of Development and Ohio Third Frontier,

Please accept our Letter of Intent for the 2011 Wright Projects Program, entitled "High Performance Hydrogen Plant to Supply 1MW Fuel Cell." Case Western Reserve University will be the lead applicant.

Thank you, and we look forward to submitting a full proposal.

--

Michael Crifasi
Proposal Developer
Great Lakes Energy Institute
Case Western Reserve University
Email: michael.crifasi@case.edu
Phone: (216) 368-0091



GREAT LAKES
ENERGY
INSTITUTE

2101 Martin Luther King Jr. Drive, Olin 305
Cleveland, Ohio 44106-7074
(216) 368-0748
energy.case.edu

November 30, 2010

Dear Ohio Department of Development,

Please accept this Letter of Intent (LOI) from Case Western Reserve University (CWRU) for our 2011 Wright Projects Program proposal.

Lead Applicant's Name: Case Western Reserve University (CWRU)
Address: Great Lakes Energy Institute (GLEI) at CWRU
2101 Martin Luther King Jr. Drive, Olin 305
Cleveland, Ohio 44106
Telephone: (216) 368-2728
Contact Person: Dr. Robert Savinell
Contact Email: rfs2@case.edu

Proposed Project Title: High Performance Hydrogen Plant to Supply 1MW Fuel Cell

Estimated Grant Funds to be Requested: \$3 Million

Known Collaborators: FirstEnergy Corp., Catacel Corp.

Project Summary

Case Western Reserve University (CWRU), FirstEnergy Corp., and Catacel Corp. propose to construct a specifically designed, high-performance hydrogen plant through a reformer that will operate at the same efficiency as larger refineries, though on a much smaller scale. Long-term research opportunities with commercial focus will be derived from this work, and will culminate in building a plant to provide a fuel feed to FirstEnergy's 1MW PEM Fuel Cell, recently installed in Willoughby, Ohio. Currently, this 1MW fuel cell receives its hydrogen fuel from portable hydrogen tanks trucked in, constraining its potential and limiting its ability to operate continuously for long periods of time. This same constraint can be found in many other alternative energy technologies of similar size, limiting their competitiveness.

Immediate and specific research in this proposed Wright Project can include effort focused on the primary operating element of the plant, the reformer. This team's work intends to produce a very compact, high heat flux design. High heat fluxes have been used in large box reformers found at refineries and other large plants. However, they have not been attempted at the small scale needed to supply to technology such as a 1MW fuel cell. Further, constructing and operating the proposed plant with a high heat flux reformer will provide the opportunity to learn and teach about compact high-performance reformer designs, as well as to learn and teach about a high temperature, high performance heat transfer environment. This can remove key commercial barriers for Catacel and FirstEnergy.

Potential near-term commercial value derived from such research will appear in providing a low-risk opportunity to evaluate and demonstrate high-performance Catacel catalysts in an environment that will directly translate to high-risk large plant conditions, removing another key commercialization barrier. The plant arrangement will also allow the fuel cell to be operated continuously for long periods of time, providing an opportunity to collect valuable data about its long term performance and durability effects, the novel reformer, and the high performance catalysts used therein.

Throughout, the plant asset will be owned by CWRU and will be physically located adjacent to the 1MW fuel cell on FirstEnergy property. It will be operated by a collaboration of the team's partners.



GREAT LAKES
ENERGY
INSTITUTE

2101 Martin Luther King Jr. Drive, Olin 305
Cleveland, Ohio 44106-7074
(216) 368-0748
energy.case.edu

Overall, if this Wright Project is successful, it will produce a potential showcase for high performance advanced energy technology in Ohio. With this will come the opportunity to create new products and new jobs for the state in the area of advanced energy.

Thank you for considering this letter of intent. We look forward to submitting a full proposal and working with the State of Ohio to meet its research and commercial needs.

Sincerely,

Dr. Robert Savinell
George S. Dively Professor
Dept. of Chemical Engineering
Case Western Reserve University

Hansen, Andrew

OTFWPP 11-449

From: Dennis Hall [hall.16@osu.edu]
Sent: Tuesday, November 30, 2010 1:40 PM
To: OTFWPP2011
Subject: 2011 OTFWPP LOI
Attachments: OBIC Bio-oil Extraction and Characterization Facility.pdf

Denny Hall
Ohio BioProducts Innovation Center
OSU, College of Food, Ag., and Envl. Sciences
Room 152 Howlett Hall, 2001 Fyffe Ct.,
Columbus, OH 43210
phone- 614-292-4188 cell- 614-582-8025
hall.16@osu.edu fax- 614-247-4739
<http://bioproducts.osu.edu/>



Ohio BioProducts Innovation Center

1680 Madison Avenue
Wooster, OH 44691-4096
Phone (330) 263-3701
Fax (330) 263-3688

152 Howlett Hall
2001 Fyffe Court
Columbus, OH 43210-1066
Phone (614) 292-2922
Fax (614) 292-4739

E-mail bioproducts@osu.edu
<http://bioproducts.osu.edu/>

November 30, 2010

The Ohio Department of Development
Technology and Innovation Division
77 South High Street, 25th Floor
Columbus, Ohio 43215

Subject: 2011 Wright Project LOI

The Ohio BioProducts Innovation Center (OBIC) intends to submit a Third Frontier Wright Project proposal.

Project title:	Bio-oil Extraction and Characterization Facility
Lead Applicant's Name:	Ohio BioProducts Innovation Center, OSU
Contact Person:	Stephen Myers, OBIIC Director
Address:	2001 Fyffe Ct., Columbus, OH 43210
Phone Number:	614-292-2922
Email:	Myers.603@osu.edu
Known Collaborators:	OBIC Alliance Member Companies and Research Institutions
Anticipated Grant Request:	\$3 million

Attached, please find a one page summary of the proposed project.

Sincerely,

Stephen Myers
Director

Project Summary

Bio-oil extraction and characterization facility

Building on prior Wright Center of Innovation investments related to bioproduct commercialization, this program will target a critical gap limiting the development of novel plant germplasm and related bio-based components. The Ohio BioProducts Innovation Center (OBIC) has strong industrial clients who are interested in advanced bio-oils for industrial applications. In addition, Ohio's plant breeding programs have seen exponential growth during the past five years and now have the sophistication capable of germplasm development to meet specific market targets.

What is needed by industry is the capability to extract pilot scale volumes of plant oils, characterize those oils, and provide sample quantities for unique industrial applications. Past OBIC investments include a new genotyping system for high-throughput genetics, a state-of-the-art Feedstock Processing Research Facility for initial bioprocessing, and an advanced combinatorial chemistry laboratory (at Battelle) that accelerates discovery and parameter evaluation. The bio-oil extraction and characterization facility will satisfy a need for pilot-scale samples that is experienced by the bio-processing industry throughout the U.S.

The key primary scientific/research fields represented are plant genomics, bioprocessing, and applications development.

Hansen, Andrew

OTFWPP 11-450

From: Dennis Hall [hall.16@osu.edu]
Sent: Tuesday, November 30, 2010 1:46 PM
To: OTFWPP2011
Cc: Dennis Hall; Stephen Myers; Elysabeth Bonar Bouton
Subject: 2011 OTFWPP LOI
Attachments: OBIC BioConversion WP LOI Final.pdf

Denny Hall
Ohio BioProducts Innovation Center
OSU, College of Food, Ag., and Env'l. Sciences
Room 152 Howlett Hall, 2001 Fyffe Ct.,
Columbus, OH 43210
phone- 614-292-4188 cell- 614-582-8025
hall.16@osu.edu fax- 614-247-4739
<http://bioproducts.osu.edu/>



Ohio BioProducts Innovation Center

1680 Madison Avenue
Wooster, OH 44691-4096
Phone (330) 263-3701
Fax (330) 263-3688

152 Howlett Hall
2001 Fyffe Court
Columbus, OH 43210-1066
Phone (614) 292-2922
Fax (614) 292-4739

November 30, 2010

The Ohio Department of Development
Technology and Innovation Division
77 South High Street, 25th Floor
Columbus, Ohio 43215

E-mail bioproducts@osu.edu
<http://bioproducts.osu.edu/>

Subject: 2011 Wright Project LOI

The Ohio BioProducts Innovation Center (OBIC) intends to submit a Third Frontier Wright Project proposal.

Project title:	Research and Demonstration Facility in Biofuel Co-Product Development
Lead Applicant's Name:	Ohio BioProducts Innovation Center, OSU
Contact Person:	Stephen Myers, OBIC Director
Address:	2001 Fyffe Ct., Columbus, OH 43210
Phone Number:	614-292-2922
Email:	Myers.603@osu.edu
Known Collaborators:	OBIC Alliance Member Companies and Research Institutions
Anticipated Grant Request:	\$3 million

Attached, please find a one page summary of the proposed project.

Sincerely,

Stephen Myers, Director

Project Summary

A research/demonstration facility is needed to accelerate commercialization of conversion technologies to process dried distiller grains (DDG'S) from grain ethanol into a novel ingredient in plastic composites. This technology has been demonstrated in the thermoset market and is close to success in the larger thermoplastic market.

A facility is needed produce pilot-scale quantities for downstream users and to verify the thermoplastic research in various product forms. The thermoset market is estimated at \$8.5B annually. The thermoplastic market is estimated at \$85B per year. This is an enormous opportunity for agribusiness in Ohio, and specifically for added income to grain ethanol businesses in Ohio.

In addition to providing a new, domestic material for use in composites, this program will provide a competitive advantage for ethanol producers.

The key scientific/technical fields represented in this project are Bioprocessing and Polymer Compounding.

Hansen, Andrew

From: Weisenberger, Jan [weisenberger.21@osu.edu]
Sent: Tuesday, November 30, 2010 1:48 PM
To: OTFWPP2011
Cc: Don Stredney; John Vilkinofsky; Steven Feit
Subject: 2011 OTFWPP LOI
Attachments: WP 2011 LOI OSU-Weisenberger.pdf

Janet M. Weisenberger

Senior Associate Vice President for Research

Ohio State University

Office of Research

208 Bricker Hall

190 N. Oval Mall

Columbus, OH 43210

614-247-4764

weisenberger.21@osu.edu



Office of Research

Senior Vice President for Research
208 Bricker Hall
190 North Oval Mall
Columbus, OH 43210-1321

November 30, 2010

Phone (614) 292-1582
Fax (614) 292-6602

Ohio Third Frontier – Wright Projects
The Ohio Department of Development - Technology and Innovation Division
77 South High Street, 25th Floor
Columbus, OH 43215-6130
OTFWPP2011@development.ohio.gov

Subject: 2011 OTFWPP LOI

To Whom It May Concern:

This is to inform you that The Ohio State University will be the Lead Organization in a proposal to be submitted in response to the Wright Projects (WP) 2011 Request for Proposals.

1. **Project Title:**
“Advanced Simulation Center for Driver and Vehicle Communications”

2. **Project Director Information:**
Dr. Janet Weisenberger, Senior Associate Vice President for Research
Office of Research
208 Bricker Hall, 190 North Oval Mall
Columbus, OH 43210
Phone: 614-247-4764
E-Mail: weisenberger.21@osu.edu

3. **Lead Organization:**
The Ohio State University
Office of Research
208 Bricker Hall, 190 North Oval Mall
Columbus, OH 43210
Phone: 614-292-1582

4. **Known Collaborators:**
The Ohio State University (OSU) | University of Dayton
Ohio Supercomputer Center (OSC) | Wright State University
Honda R&D Americas, Inc. (HRA) | Ohio University
National Highway Traffic Safety Administration (NHTSA)

5. **Estimated Dollars to be Requested:** \$1,000,000

6. Summary of Proposed Topic:

The driver of today's automobile faces a potentially overwhelming array of communication systems and displays, which increasingly serve as distracters which can lead to vehicle crashes and erratic driving performance. The primary goal of the Advanced Simulation Center for Driver and Vehicle Communications is to optimize the design of automobile communication and warning systems and instrument panels to provide useful, but not distracting, information to the driver. The Center will provide a rich simulated environment to evaluate the complex interactions between drivers and emerging vehicle information technologies, including advanced sensing information regarding vehicle status and stability, traffic and roadway information, and cockpit information and entertainment systems. As a secondary goal, the simulation Center will provide an excellent environment to study human perception, attention, and cognition under a wide variety of simulated driving conditions, leading to the design of even more advanced instrument panels, and creating a highly-trained cadre of students to enter the Ohio workforce. The Center will feature a cost-effective, rapidly reconfigurable simulation environment for quantitative assessment of a wide variety of vehicle/human communication interface variables, promoting rapid optimization of instrumentation and implementation in production vehicles. Leveraged with the Ohio Supercomputer Center (OSC), the Center will provide the researcher with the computational resources to rapidly validate unique and innovative designs and to investigate complex systems-level computations such as multi-bodied dynamics with humans in the loop.

Partnering in the establishment of the Center at The Ohio State University (OSU), Honda R&D Americas (HRA) will use the facility to locally validate various interfaces under varying simulated driving conditions, including the Alliance of Automobile Manufacturers (AAM) driver distraction guidelines. Currently, this capacity does not exist in Ohio. Furthermore, the Center is designed to also stimulate and expand opportunities for interdisciplinary research and training at OSU, and promote new and innovative collaborations between HRA and OSU and other affiliated businesses, including transportation and supply chain manufacturers. A number of potential additional industry and university partners across the state are in the process of being contacted regarding their participation in the Center. As transportation and vehicles become ever more technologically advanced, the Center will serve both to catalyze new designs for existing Ohio companies and also to attract and grow new companies related to information and transportation. Particular focus will be directed to the commercialization and improvement of products throughout the supply chain of key selected Ohio industries, including advanced materials, sensors, and displays related to transportation. The overall goal is to engage in vigorous research and development using advanced simulations to design, test, and validate improved products, new materials, and new processes whose commercialization will produce a revenue stream for the state well into the future. At the same time, by including a strong program of education and training, the Center will create a knowledgeable workforce to make effective use of advanced simulation systems for academic, industrial, and applied research applications.

We look forward to the opportunity to submit a full proposal to this competition.

Sincerely,



Janet M. Weisenberger, Ph.D.
Senior Associate Vice President for Research

Hansen, Andrew

OTFWPP 11-452

From: Yebo Li [li.851@osu.edu]
Sent: Tuesday, November 30, 2010 1:51 PM
To: OTFWPP2011
Subject: 2011 OTFWPP LOI
Attachments: Letter Intent_Li - F.pdf

LOI for 2011 OTFWPP is attached.

Thank you!

Yebo Li
Assistant Professor
Department of Food, Agricultural, and Biological Engineering
The Ohio State University-OARDC
Rm 111 Administration Building
1680 Madison Ave
Wooster, OH 44691-4096
Phone: (330)263-3855 (Office), (330)202-3561 (Lab)
Fax: (330)263-3670
E-mail: li.851@osu.edu
Webpage: <http://www.oardc.ohio-state.edu/bioenergy>



**Ohio Agricultural Research
and Development Center**

**Department of Food, Agricultural,
and Biological Engineering**
1680 Madison Avenue
Wooster, OH 44691-4096

Phone: 330-263-3855
Fax: 330-263-3670
E-mail: li.851@osu.edu

Letter of Intent to OTFWP Program

Lead Applicant: The Ohio State University, 1960 Kenny Rd, Columbus, OH 43210

Contact Person: Yebo Li, Phone: 330-263-3855, E-mail: li.851@osu.edu

Project Title: Development of an Integrated System for Cost Effective Algae Production under Temperate Conditions

Estimated Grant Funds: Operational funds \$500,000, Wright Capital Funds: \$2,500,000

Collaborator(s): Touchstone Research Laboratory, Algaeventure Systems, Phycal Inc., Cedar Lane Farms, quasar energy group, Arlington Products, LLC

Summary of project:

This project will develop and demonstrate an integrated algae culturing and processing system for the production of biofuels, energy, and other high value products. The project will be managed by The Ohio Agricultural Research and Development Center and the pilot scale algae production system will be built on the Cedar Lane Farms (CLF) in Wooster, OH.

This proposal builds on prior federal investments by the U.S. Department of Energy to accelerate the commercialization of algae production technology. The objectives of this project include:

- (1) Develop and demonstrate an integrated algae production technology including replacement of commercial nutrients with effluent of anaerobic digestion, algae production in open ponds with a phase change material (PCM), algae harvesting with a rapid algae concentration (RAC) and dewatering, an algae drying (HDD) technology, and advanced algae extraction technologies through the collaboration with Touchstone Research Laboratory, Algaeventure Systems, and Phycal Inc.
- (2) Develop and demonstrate algae biomass residue conversion technologies through anaerobic digestion, hydrothermal liquefaction, and polymerization via collaboration with quasar energy group, Arlington Products LLC, etc. Products could include methane, bio-oil, polymers, plastics, foams, proteins, carbohydrates, etc.
- (3) Develop analytical and pilot scale testing capability to support algae research and development in Ohio.

Hansen, Andrew

OTFWPP 11-453

From: Michael Heben [michael.heben@utoledo.edu]
Sent: Tuesday, November 30, 2010 1:58 PM
To: OTFWPP2011
Subject: 2011 OTFWPP LOI
Attachments: Wright_Projects_LOI_UToledo_10_11_30.pdf

Hansen, Andrew

OTFWPP 11-454

From: George Ruberg [Gruberg@ZANESTATE.EDU]
Sent: Tuesday, November 30, 2010 1:59 PM
To: OTFWPP2011
Cc: Steven Weinzierl; C. Steckel; Paul Brown; Pamela Jira
Subject: 2011 OTFWPP LOI
Attachments: LetterOfIntent_ZaneStateCollege_WrightProjects2011.DOCX

Please find attached a letter of intent from Zane State College for the FY2011 Ohio Third Frontier Wright Projects Program.

Thank you.

George Ruberg
Director of Grants and Contracts
Zane State College
1555 Newark Road
Zanesville, OH 43701-2626
(740) 588-1252
Fax: (740) 588-1255
gruberg@zanestate.edu
<http://www.zanestate.edu/>



1555 Newark Road, Zanesville, Ohio 43701 • 740-454-2501

November 30, 2010

Ohio Department of Development
Technology and Innovation Division
Attention: OTFWPP
77 South High Street, 25th Floor
Columbus, OH 43215

To Those Concerned:

I am pleased to submit this letter of intent for the 2011 competition for the Ohio Third Frontier Wright Projects Program. Zane State College and its partners intend to submit a proposal for funding for an FY2011 Wright Project. As requested, contact information is provided below and a one page summary of the proposed project is attached. We understand that this letter will be posted online.

Prospective Lead Applicant Information

Lead applicant name: Zane State College
Address: 1555 Newark Road, Zanesville, OH 43701-2626
Phone number: (740) 588-1200
Contact person: George Ruberg, Director of Grants and Contracts
Email address: gruberg@zanestate.edu
Proposed project title: Development of a light sport aircraft engine for cost sensitive applications
Estimated grant funds to be requested: \$3,000,000
Known collaborators:

Thank you for this opportunity.

Sincerely,

A handwritten signature in black ink that reads 'Paul R. Brown'.

Paul R. Brown, Ed.D.
President

Summary

Development of a light sport aircraft engine for weight and cost sensitive applications

The project will lead to the commercialization of a new general aviation engine that will address the needs of the light sport aircraft engine market.

In addition to civilian aircraft applications, the design will address military applications.

The need for a new, low weight, cost effective engine has long been recognized. However, the execution of such an engine has been a technical challenge that requires a reliable engine that properly utilizes advanced materials.

The aviation market for this new engine is substantial. The engine architecture allows the engine to be weight effective and cost-sensitive, traditionally the most challenging factors in the industry.

Hansen, Andrew

OTFWPP 11-455

From: Darrell R. Wallace [drwallace01@ysu.edu]
Sent: Tuesday, November 30, 2010 2:27 PM
To: OTFWPP2011
Cc: Jack Scott
Subject: 2011 OFTWPP LOI
Attachments: OTFWPP - YSU LOI, Draft 1.docx

| Please find attached LOI for the OTFWPP2011 Program.

Darrell R. Wallace, Ph.D. Assistant Professor
Mechanical and Industrial Engineering
Youngstown State University
(330) 941-3272
drwallace01@ysu.edu

**Ohio Third Frontier Wright Projects Program
Letter of Intent**

**Youngstown State University
Center for Concurrent Sustainable Manufacturing**

Lead Applicant: Youngstown State University

Contact: Dr. Darrell R. Wallace
Assistant Professor
Dept. of Mechanical and Industrial Engineering
One University Plaza
Youngstown, Ohio 44555
drwallace01@ysu.edu
(330)941-3272

Proposed Project Title: "Center for Concurrent Sustainable Manufacturing"

Grant Funds Requested: \$3M (\$2.5M capital / \$500k operating)

Project Collaborators:

- Youngstown State University (YSU)
- Youngstown Business Incubator (YBI)
- Warren Tech-Belt Energy Innovation Center (TBEIC)
- M-7 Technologies, Inc.
- Applied Systems and Technology Transfer (AST2)
- Zethus-AST2

Project Summary:

The proposed Center for Concurrent Sustainable Manufacturing (CCSM) is envisioned as a broad-purpose regional resource to advance manufacturing related education, training, and product development utilizing current and emerging state of the art manufacturing processes and methodologies. The center will be comprised of a physical manufacturing environment focused primarily on prototype development, testing, and evaluation using adaptive, flexible manufacturing processes. Utilizing innovative web- and cloud-based interfaces, these various resources will be made broadly accessible to both educational and commercial entities, augmenting the capabilities of all and fostering opportunities for technology transfer and collaboration.

For Youngstown State University and its educational affiliates, the CCSM will provide a staffed, capable manufacturing facility able to support the growing educational and research needs of the university, particularly the College of STEM. Students and faculty will be provided with an environment in which they may convert theoretical concepts into working artifacts. Areas of education and research that will be directly supported by the center include: **engineering design, advanced materials, manufacturing, and advanced energy.**

The capabilities of the facility will directly support regional manufacturing and technology companies. The manufacturing floor will provide a living workshop to develop and evaluate new strategies for adaptive manufacturing processes and supporting technologies. The prototyping and testing capabilities of the facility will provide resources for accelerated product development and testing. For startup companies focused on massively customized mission-critical applications, the Center may also serve as a Phase 1 contract manufacturing facility during enterprise startup. Coupled with the advanced materials research capabilities offered by YSU, regional economic growth in the advanced manufacturing sector will be stimulated.

Preliminarily, the proposed center would be envisioned to be housed at the new Warren Tech-Belt Energy Innovation Center. That facility, developed in partnership with YSU, will serve as a magnet for innovation-minded companies seeking strategic regional resources and partnerships. The CCSM would support the needs of TBEIC affiliates while benefitting from the synergy of partnership opportunities and networking afforded by collocation.

The CCSM model that will be proposed seeks to establish a viable, self-sustaining resource for the regional manufacturing and educational communities. The center will leverage key partnerships and synergistic activities currently underway and will augment those with additional matching funds.

Goals of the CCSM:

- Reduce the time required for product design, prototype, manufacturing, service testing and verification by at least 50%.
- Support concurrent integrated product development, design, manufacturing, and verification as opposed to the current “waterfall” practice of component level sequential design, development, and manufacturing.
- Integrate and consolidate design and manufacturing process steps in favor of simplified and automated manufacturing.
- Deploy manufacturing processes that reduce energy requirements and promote sustainability through resource conservation, recycle and re-use, and mitigation of environmental impacts.
- Democratize the design and manufacturing processes to enable and optimize concurrent distributed design and manufacturing in smaller and more efficient facilities.
- Promote technologies, materials, and manufacturing processes that are inherently adaptive for multi-function and multi-purpose applications.
- Develop and promote tools and technologies that enable normally disparate teams to collaborate in a virtual environment toward common manufacturing goals.