

MINUTES OF THE MEETING  
OF THE  
MICHIGAN STATE UNIVERSITY  
BOARD OF TRUSTEES

February 19, 2016

President Simon called the meeting of the Board of Trustees to order at 9:30 a.m. in the Board Room.

Trustees present: Brian Breslin, Dianne Byrum, Joel Ferguson, Melanie Foster, Mitch Lyons, Brian Mosallam, George Perles, and Diann Woodard.

University officers present: President Simon, Provost and Executive Vice President Youatt, Executive Vice President Udpa, Vice President and Secretary Beekman, Vice President and General Counsel Noto, Vice Presidents Burnham, Gore, Groves, Haas, Hsu, Maybank, Swain, and Young, and Senior Advisor and Director Granberry Russell. Faculty liaisons present: John Bell, Martin Crimp, Joseph Francese, Mariam Sticklen, and Mary Noel. Student liaisons present: Brian Batayeh, Domonique Clemons, Amanda Hohly-Seng, and Sudha Sankar.

All actions taken were by unanimous vote of the Trustees present, unless otherwise noted.

1. On a motion by Trustee Ferguson, supported by Trustee Breslin, the **BOARD VOTED to approve** the agenda.
2. On a motion by Trustee Foster, supported by Trustee Ferguson, the **BOARD VOTED to approve** the minutes of the December 18, 2015 Board of Trustees meeting.
3. President's Report

President Simon provided the following report to the Board.

A. University achievements

The MSU Police Department has formed an Inclusion and Anti-Bias Unit, committed to proactively addressing police and community-related issues associated with bias.

The unit is one of the first of its kind to be created by a university police force, and will work in collaboration with the University community to provide internal and external training, raise awareness, and help create an inclusive culture at Michigan State.

Three books published by MSU Press are included in World Literature Today's 75 Notable Translations of 2015.

B. Student and alumni achievements

Four undergraduate researchers studying STEM-related fields have been nominated by MSU for the nationally competitive Barry M. Goldwater Scholarship. Four students involved in public service have been nominated by MSU for the Harry S. Truman Scholarship.

MSU cellist Chae won Hong was named champion at Julian Gargiulo's Carnegie Hall competition.

College of Arts and Letters graduate students Jennifer Gohlke and Sophia Pavlos have been named Humanities Without Walls 2016 Pre-Doctoral Workshop Fellows.

Ivette Herryman Rodriguez, a doctoral student in composition at the College of Music, has received a fellowship from the CINTAS Foundation Fellowship Competition.

MSU has 12 teams competing in this year's Student Startup Madness tournament field of 64 — twice as many as the next closest school.

The MSU debate team finished in the top eight out of 124 teams competing in the Texas Open tournament this week.

C. Faculty and staff achievements

University Distinguished Professor Jim Kelly won the 2015 National Council of Commercial Plant Breeders Genetics and Plant Breeding Award - the first Spartan to win this honor since Clint Peterson in 1963.

University Distinguished Professor of Computer Science and Engineering Anil Jain has been elected to the National Academy of Engineering, one of the highest professional distinctions accorded to an engineer.

Assistant Professor of Psychology Bill Chopik made Forbes' "30 Under 30 In Science" list.

Assistant Professor April Baker-Bell has been named a Fellow with the Literacy Research Association STAR mentoring program.

D. Athletics

Dave Carrier, athletic trainer for the MSU ice hockey program, will receive the 2016 Jim Fullerton Award from the American Hockey Coaches Association (AHCA), in recognition of his career contributions to college ice hockey.

McLane Baseball Stadium and Secchia Stadium will both be receiving new electric field heating systems, making MSU the first university in the U.S. to have electric field heating technology, and allowing the baseball and softball programs to have extended playing time on natural surfaces during the colder months.

E. Facility and Infrastructure Report

Dan Bollman, Associate Vice President of Infrastructure Planning and Facilities, presented the Facility and Infrastructure Report. The report is available at <http://ipf.msu.edu/files/pdfs/reports/facilities-and-infrastructure-report-2016.pdf>.

F. Flint

MSU has been highly engaged in the Flint community for a very long time. MSU extension has been engaged in Flint for over 100 years, supporting Flint citizens in a variety of capacities. MSU Extension is embedded in the community, but can reach back to the campus and tap University expertise, no matter what the challenge.

The College of Human Medicine (CHM) has been in Flint for almost 50 years with its community-based medical program, teaching residents and third and fourth year medical students. Dr. Mona Hanna-Attisha, director of the Pediatric Public Health Initiative (PPHI) partnership, and her team are working to lessen the impact of the exposure on those most vulnerable—children under age six.

Over five years ago, MSU began discussing how to more actively support the communities in which it has a presence and take full advantage of our community networks and outreach scholarship research. Out of that came a partnership with the Mott Foundation that provided additional space in Flint, as well as support of the Mott Fellows. Those Fellows are critical to the University's infrastructure and agenda in Flint, independent of the water crisis there. They are

part of the embedded base of CHM's Flint campus and were able to mobilize in very effective ways to help respond to the crisis.

The College of Education was in the process of working with the Mott Foundation in the Flint Public Schools on a set of educational reforms well before the crisis in Flint became part of the public dialogue. In addition, College of Nursing outreach and engagement efforts, the College of Social Science, the School of Criminal Justice, and others are simply part of what MSU does around the state, living the land-grant ideal.

President Simon asked Dr. Jeff Dwyer, Director of MSU Extension, to provide additional details on MSU activities in Flint. Dr. Dwyer noted that MSU has been present in Flint for many years and will continue the programming that has been in place long after the water crisis has been resolved. MSUE is also able to adapt its approach to the current situation. Dr. Dwyer stated that he would share MSU's actions in Flint through CHM, and Extension.

Dr. Dwyer introduced Dr. Dean Sienko, Associate Dean of Public Health, to discuss CHM's activities in Flint. Dr. Sienko said that MSU has had a medical student presence in Flint for many years. Third and fourth year medical students rotate through various sites across the State for clinical rotations, including Flint. In addition, CHM offers certain certificates for its students in Flint, including Leadership for Medicine in the Underserved, which focuses on the underserved population. CHM also offers a public health certificate to its medical students.

CHM is located in downtown Flint in support of the revitalization efforts. Across the street is the Flint Farmer's Market. Hurley Pediatric Clinic has moved to the site as well.

In addition to medical education for students, CHM also engages in public health research in Flint. As the beneficiary of a Mott Foundation grant, CHM focuses on the community and what the community has deemed important. Many surveys and conversations revealed that the community wanted expertise in chronic diseases, behavioral health, and healthy behaviors, but all of that in the context of the social determinants of health and health inequities. The members of the research team are Dr. Deb Furr-Holden, Dr. Woody Neighbors, Dr. Jennifer Johnson, and Dr. Rick Sadler.

Dr. Sienko introduced Dr. Sadler to discuss his research in Flint.

Dr. Sadler said that he is a geographer who looks at patterns of health promoting and degrading activities to see where there are gaps in, for instance, healthy food, or concentrations in blood lead levels. Dr. Sadler described a community food store assessment that included mapping the concentration of healthy food options within Flint. This is important because of the connection between lead exposure and good nutrition. As a result of the study, sites have been identified as suitable for healthy store initiatives. The study is also being used by the East Michigan Food Bank to look at which sites are going to be most effective as food distribution sites in the near term and in the long term with respect to the lead exposure.

Vice President Burnham said that Governmental Affairs has also been involved, working with Dr. Hanna-Attisha since the fall of 2015. MSU has been meeting with her and facilitating conversations not only with the congressional delegation, but also with the Centers for Disease Control, the National Institutes of Health, and a number of other federal agencies which are trying to respond to the situation in Flint. His office has been trying to coordinate support through legislative adjustments to programs like the Supplemental Nutrition Assistance Program (SNAP) education program, which is a federal program that allowed MSU Extension to use existing money to facilitate an immediate response to the crisis.

Vice President Maybank said that MSU has a force of 50,543 students and 38 registered student organizations to help and to be a resource for the City of Flint. These students came together a couple of weeks ago and sat in a room and talked about what they could do, how they could mobilize the members of their organizations, some 15 strong, others 150 strong, to make a difference in Flint, not just in terms of what the students want to do, but in alignment with the needs and desires of the residents of Flint.

The Center for Service Learning and Civic Engagement has long been a resource for volunteer engagement. It is responsible for organizing and coordinating volunteer effort through a resource called GiveGab. MSU athletes, band members, cheerleaders, and members of other student leadership groups were in Flint just a couple of weekends ago, distributing water and engaging in a recycling effort around the plastic bottles that are now ever present in Flint. GiveGab tracks the time, effort, and value of what it is Spartans do when they go out into the world: 141,708 hours, representing over 3 million dollars in contribution to the community.

President Simon introduced Kerry Nelson, President of Flint City Council. Mr. Nelson thanked MSU for its support of and assistance to the City of Flint. Mr. Nelson said that he would not rest until every home in Flint is lead-free. He noted that it will be a journey and that he is thankful to have MSU as a partner.

President Simon introduced Mr. Sean Kammer, Executive Assistant to the Mayor of Flint, Karen Weaver. Mr. Kammer said that he echoed Council President Nelson's sincere appreciation to MSU. Knowing that MSU is committed to stay in Flint is a tremendous relief.

4. There was no Public Participation on Issues Germane to the Agenda.
5. Personnel Actions

Provost Youatt presented the following personnel actions:

Holden, Carolyn D, AN-CS Mott Professor, College of Human Medicine; Department of Epidemiology and Biostatistics, \$183,300, with Tenure, effective January 4, 2016.

Neighbors, Harold W, AN-CS Mott Professor, College of Human Medicine; Department of Family Medicine, \$225,000, with Tenure, effective January 1, 2016.

Trustee Breslin **moved to approve** the recommendations, with support from Trustee Byrum.

**THE BOARD VOTED to approve** the recommendations.

Hendrick, Ronald L, AN-Dean, College of Agriculture and Natural Resources; Professor, Department of Forestry, \$300,000, with Tenure, effective July 1, 2016.

Trustee Byrum **moved to approve** the recommendation, with support from Trustee Woodard.

**THE BOARD VOTED to approve** the recommendation.

6. Gift, Grant and Contract Report

Vice President Hsu presented the Gifts, Grants, and Contracts Report for the period of November 13, 2015 through January 20, 2016. The report is a compilation of 514 Gifts, Grants and Contracts, plus 72 Consignment/Non-Cash Gifts, with a total value of \$116,629,394.

Trustee Lyons **moved to approve** the report, supported by Trustee Mosallam.

Vice President Hsu introduced Dr. Gary J. Blanchard, Associate Chair for Education in Chemistry, who presented to the Board on Recent Advances in Impact Sensing. (Appendix A)

7. Finance Committee

Trustee Foster presented the Trustee Finance Committee Report and the following recommendations and resolutions.

A. Fund Functioning as an Endowment—Julius A. Martinek Endowment

It was recommended that the Board of Trustees establish a fund functioning as an endowment to provide unrestricted support for leadership development in the College of Agriculture and Natural Resources.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby establishes a fund functioning as an endowment entitled “Julius A. Martinek Endowment”.

Trustee Foster **moved to approve** the resolution, with support from Trustee Breslin.

**THE BOARD VOTED to approve** the resolution.

B. Fund Functioning as an Endowment—Marilyn F. Shay Fund in Human Development and Family Studies

It was recommended that the Board of Trustees establish a fund functioning as an endowment to provide unrestricted support to the Department of Human Development and Family Studies.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby establishes a fund functioning as an endowment entitled “Marilyn F. Shay Fund in Human Development and Family Studies”.

Trustee Foster **moved to approve** the resolution, with support from Trustee Lyons.

**THE BOARD VOTED to approve** the resolution.

- C. It was recommended that the Board of Trustees authorize the purchase of real property located in Tuscola County, Michigan, for \$1,400,000.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby authorizes the Administration to purchase approximately 150 acres of real property located at Krueger and S. Van Buren Roads in Tuscola County, Michigan for \$1,400,000 and upon such other terms and conditions as may be acceptable to the Executive Vice President for Administrative Services.

Trustee Foster **moved to approve** the resolution, with support from Trustee Breslin.

**THE BOARD VOTED to approve** the resolution.

- D. Project Approval—Authorization to Proceed—Sheep Barn—Addition 2—Sheep Lambing and Research Facility (footprint change)

It was recommended that the Board of Trustees authorize the Administration to proceed with an improvement to the University's sheep research facilities that will enhance its research and teaching capabilities.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby authorizes the Administration to proceed with the project entitled "Sheep Barn—Addition 2—Sheep Lambing and Research Facility".

Trustee Foster **moved to approve** the resolution, with support from Trustee Breslin.

**THE BOARD VOTED to approve** the resolution.

- E. Project Approval—Authorization to Proceed—Commuter Parking Lot 89—Reconstruct Southeast Section

It was recommended that the Board of Trustees authorize the Administration to proceed with reconstruction of a portion of commuter parking lot 89 to repair significant deterioration and remove safety hazards.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby authorizes the Administration to proceed with the



project entitled "Commuter Parking Lot 89—Reconstruct Southeast Section", with a project budget of \$2,500,000.

Trustee Foster **moved to approve** the resolution, with support from Trustee Ferguson.

**THE BOARD VOTED to approve** the resolution.

F. Project Approval—Authorization to Proceed—Music Practice Building—Replace Windows

It was recommended that the Board of Trustees authorize the Administration to proceed with replacement of windows and related items in the Music Practice Building.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby authorizes the Administration to proceed with the project entitled "Music Practice Building—Replace Windows", with a project budget of \$1,500,000.

Trustee Foster **moved to approve** the resolution, with support from Trustee Breslin.

**THE BOARD VOTED to approve** the resolution.

G. Bid and Contract Award—Hubbard Hall—Exterior Masonry Repair (phase I)

It was recommended that the Board of Trustees authorize the Administration to award a contract and reduce the budget for the first phase of the Hubbard Hall exterior restoration.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby awards a contract in the amount of \$1,838,490 to Nielsen Commercial Construction Company and that the budget be reduced from \$3,000,000 to \$2,500,000 for the project entitled "Hubbard Hall—Exterior Masonry Repair (phase I)".

Trustee Foster **moved to approve** the resolution, with support from Trustee Byrum.

**THE BOARD VOTED to approve** the resolution.

9. Policy Committee

Trustee Byrum presented the Trustee Policy Committee Report and the following recommendations and resolutions.

A. Approval of Contract Terms

It was recommended that the Board of Trustees approve a contract between Michigan State University and *Genisama, LLC*, a company in which faculty member Dr. Juyang Weng holds a financial interest.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby approves an option agreement with *Genisama, LLC*, consistent with earlier public notice given at a Board meeting and with the "Option Agreement Term Sheet" presented to the Board. (Appendix B)

It was recommended that the Board of Trustees approve a contract between Michigan State University and *Guangzhou Wolbaki Biotech Company Ltd.*, a company in which faculty member Dr. Zhiyong Xi holds a financial interest.

BE IT RESOLVED that the Board of Trustees approves a sponsored research agreement between Michigan State University and *Guangzhou Wolbaki Biotech Company Ltd.*, consistent with earlier public notice given at a Board meeting and with the "Sponsored Research Agreement Term Sheet" presented to the Board. (Appendix C)

It was recommended that the Board of Trustees approve a contract between Michigan State University and *Kopess Biomass Solutions, LLC*, a company in which faculty members Dr. Kyung-Hwan Han and Dr. Daniel E. Keathley hold a financial interest.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby approves an option agreement with *Kopess Biomass Solutions, LLC*, consistent with earlier public notice given at a Board meeting and with the "Option Agreement Term Sheet" presented to the Board. (Appendix D)

It was recommended that the Board of Trustees approve a contract between Michigan State University and *Kopess Biomass Solutions, LLC*, a company in which faculty members Dr. Kyung-Hwan Han and Dr. Daniel E. Keathley hold a financial interest.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby approves a rights allocation agreement with

*Kopess Biomass Solutions, LLC*, consistent with earlier public notice given at a Board meeting and with the "Rights Allocation Agreement Term Sheet" presented to the Board. (Appendix E)

It was recommended that the Board of Trustees approve a contract between Michigan State University and *Kopess Biomass Solutions, LLC*, a company in which faculty members Dr. Kyung-Hwan Han and Dr. Daniel E. Keathley hold a financial interest.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby approves a sponsored research agreement with *Kopess Biomass Solutions, LLC*, consistent with earlier public notice given at a Board meeting and with the "Sponsored Research Agreement Term Sheet" presented to the Board. (Appendix F)

It was recommended that the Board of Trustees approve a contract between Michigan State University and *Maven Business Development, LLC*, a company in which faculty members Dr. William Donohue, Dr. Charles Owen, and Dr. Richard Spreng hold a financial interest.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby approves an option agreement with *Maven Business Development, LLC*, consistent with earlier public notice given at a Board meeting and with the "Option Agreement Term Sheet" presented to the Board. (Appendix G)

It was recommended that the Board of Trustees approve a contract between Michigan State University and *MTBIsense, LLC*, a company in which faculty members Dr. Gary Blanchard and Dr. Marcos Dantus hold a financial interest.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby approves an option agreement with *MTBIsense, LLC*, consistent with earlier public notice given at a Board meeting and with the "Option Agreement Term Sheet" presented to the Board. (Appendix H)

It was recommended that the Board of Trustees approve a contract between Michigan State University and *Piezonix, LLC*, a company in which faculty member Dr. Nizar Lajnef holds a financial interest.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby approves a license agreement with *Piezonix, LLC*, consistent with earlier public notice given at a Board meeting and

with an "License Agreement Term Sheet" presented to the Board. (Appendix I)

It was recommended that the Board of Trustees approve a contract between Michigan State University and *QuantumBio, Inc.*, a company in which faculty member Dr. Kenneth M. Merz, Jr. holds a financial interest.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby approves a license agreement with *QuantumBio, Inc.*, consistent with earlier public notice given at a Board meeting and with a "License Agreement Term Sheet" presented to the Board. (Appendix J)

It was recommended that the Board of Trustees approve a contract between Michigan State University and *RecordWear, LLC*, a company in which faculty members Dr. Gary Blanchard and Dr. Marcos Dantus hold a financial interest.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby approves an option agreement with *RecordWear, LLC*, consistent with earlier public notice given at a Board meeting and with an "Option Agreement Term Sheet" presented to the Board. (Appendix K)

Trustee Byrum **moved to approve** the resolutions, with support from Trustee Breslin.

**THE BOARD VOTED to approve** the resolutions.

10. Audit Committee

Trustee Breslin presented the Audit Committee report and the following recommendation and resolution.

A. Reappointment of University's External Auditors for 2015-16

It was recommended that the Board of Trustees reappoint Plante & Moran as external auditors for the 2015-16 fiscal year.

BE IT RESOLVED that the Board of Trustees of Michigan State University hereby reappoints Plante & Moran as the University's external auditors for the 2015-16 fiscal year at a fee of \$348,000 in accordance with the University's policy on the rotation of auditors.

Trustee Breslin **moved to approve** the resolution, with support from Trustee Foster.

**THE BOARD VOTED to approve** the motion.

Trustee Breslin said that the Audit Committee met and received an overview of the key areas of litigation for the University from Vice President Noto. Trustee Breslin noted that the Committee also received an update on the IRS Audit.

11. Trustee Comments

Trustee Ferguson thanked the presenters and said that he is proud of the depth that MSU has and the impact that MSU has on the State, the nation, and the world.

Trustee Woodard said that she echoed Trustee Ferguson's comments and stated how proud she was of MSU's commitment to long-term solutions.

Trustee Mosallam commended MSU Extension and the Flint team for all of their work on the Flint water crisis.

Trustee Foster said that she is proud to be part of a university with such depth, and thanked the Flint representatives for attending the meeting. Trustee Foster also thanked Dr. Blanchard for his presentation.

Trustee Byrum stated that the faculty liaison group discussed how to become an exceptional university. She stated that she is very proud to be a Spartan. Trustee Byrum also welcomed the Mott Fellows and Dean Designee Hendricks.

Trustee Perles recognized Sally Nogle for her achievements in athletic training.

Trustee Breslin recognized President Simon for being elected the Chair of the Association of American Universities. He then thanked Kerry Nelson and Sean Krammer for attending the meeting. Trustee Breslin commended Domonique Clemens and Sudha Sankar on their efforts to involve students in sometimes difficult conversations. Trustee Breslin welcomed Dean Hendricks.

Trustee Lyons said that he is proud of the work being done at MSU and proud to be a part of such a complex and advanced institution.

12. There was no Public Participation on Issues Not Germane to the Agenda

13. Request to Adjourn

On a motion by Trustee Ferguson, supported by Trustee Lyons, **THE BOARD VOTED to adjourn** at 11:25 a.m.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "W Beekman". The signature is fluid and cursive, with the first letter "W" being particularly large and stylized.

William R. Beekman  
Vice President and  
Secretary of the Board of Trustees

**RESEARCH  
PRESENTATION  
TO THE MSU BOARD OF TRUSTEES**

**FEBRUARY 19, 2016**

**GARY J. BLANCHARD  
COLLEGE OF NATURAL SCIENCE**

Facilitated by the Office of the Vice President for  
Research and Graduate Studies

## BIOGRAPHICAL SKETCH

Gary J. Blanchard

Gary Blanchard received his BS degree in Chemistry with Honors from Bates College in 1981 and his PhD degree in Chemistry from the University of Wisconsin – Madison in 1985. That same year he joined Bell Communications Research in Red Bank, New Jersey, where he worked on environmental and contaminants research and ultra-high speed photonic signal processing. In 1991 Blanchard joined the Chemistry faculty at Michigan State University as an Assistant Professor, rising through the ranks to Professor in 1999. He also holds an adjunct appointment in Ag and Biosystems Engineering and serves as the Associate Chair for Education in Chemistry. His research focuses on interfacial science, nanoparticles, chemical sensing and catalysis, and the development of novel methods for characterizing molecular species at trace levels on surfaces. His work has been supported by the National Science Foundation, the US Department of Energy and the National Institutes of Health, in addition to many private sector sources. Blanchard has published 200 peer-reviewed papers, holds 5 patents, has presented more than 270 talks at National and international meetings and universities, and has graduated 30 PhDs and 8 MSs during his 24+ years at Michigan State University.

His work on impact sensing, in collaboration with Professor Marcos Dantus, represents a new area of investigation that has developed over the past two years.



MICHIGAN STATE UNIVERSITY

## Recent Advances in Impact Sensing at Michigan State University

Gary Blanchard Chemistry and Ag and Biosystems Engineering



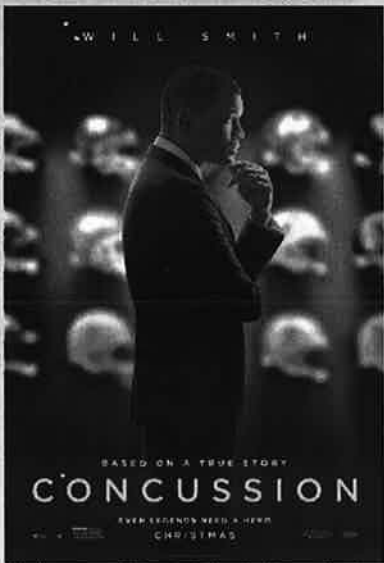
“Spartan Chemists tackling real-world problems, and transforming lives”

**Special Thanks**

Dr. David Kaufman	Professor and Chair of MSU Neurology
Dr. Sally Nogle	Head Athletic Trainer, Intercollegiate Athletics

MICHIGAN STATE UNIVERSITY

### Physical Impact Sensing



http://www.sonypictures.com/movies/concussion/

**Problem:** CDC estimates 1.6 to 3.8M concussions occur per year

30 seconds: Did a player experience a potentially concussive blow?

**Opportunity:** Develop a sensor to aid professionals in evaluating athletes quickly and accurately

**WHO WILL?  
SPARTANS WILL.**

## Growing realization of the magnitude of this problem

### NFL & GE Announce Six Final Winners of \$10 Million Head Health Challenge I

July 23, 2015

- Three based on blood tests
- Two based on imaging
- One based on modeling concussion

**NO RAPID ON-SITE EVALUATION AID**

## Current Technology



Riddell helmet  
six accelerometers



Reebok CheckLight  
three accelerometers and a gyroscope

### Drawbacks

- Electronic (power, payload)
- Enormous data stream
- Hackable
- False positives
- Breakable
- Expensive


*Use of helmet sensors suspended by NFL for 2015-6 season  
(NY Times, 2/19/15)*






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### Our Approach

Physical impact sensing

Thin sensor arrays worn in a headband – removable and replaceable



Actual Measurements	
	112 g
	52 g
	39 g
	34 g
	20 g

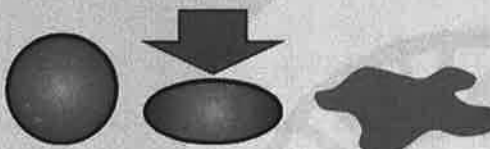
**Features**

- ✓ Impact location & magnitude
- ✓ No false positives
- ✓ Not hackable
- ✓ Not prone to breakage
- ✓ Inexpensive, disposable


MSU IP: U.S. Provisional Patent Application, MSU TEC2016-0005, Filed September, 2015.

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### Sensing micro-vessels

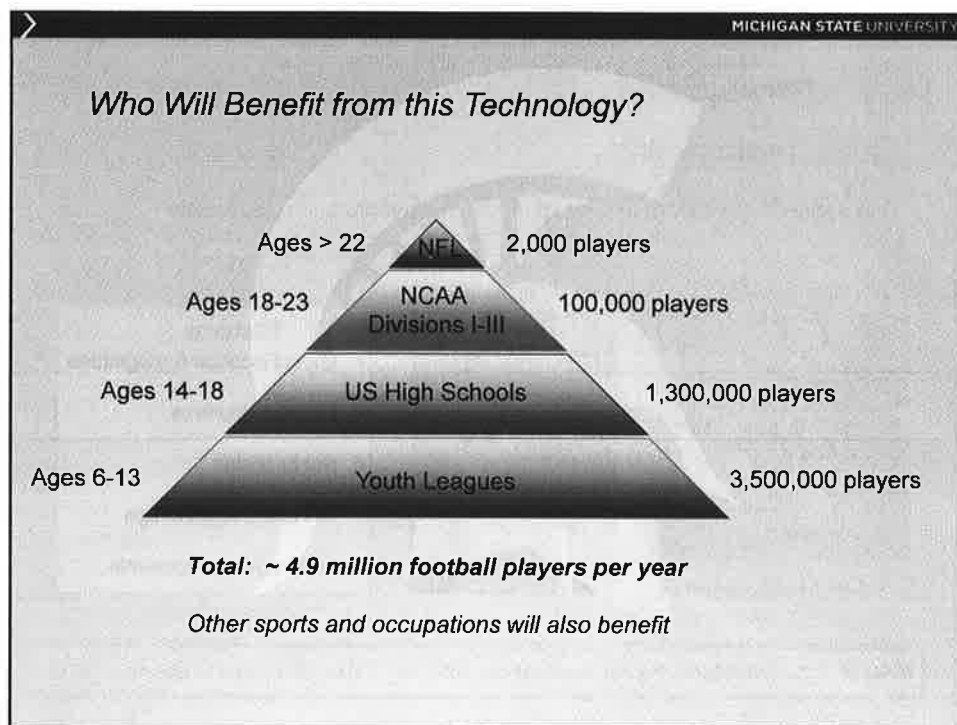


- Wall thickness determines burst strength
- Challenging chemistry



MSU IP: U.S. Provisional Patent Application, MSU TEC2015-0115, Filed July, 2014.

Supported by MSU Technologies




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### Current Progress

Initial trials to evaluate utility and resolve ergonomic issues

Laboratory calibration successful and in progress



#### Helmet Properties

Helmet padding:

- Rigid for low impact hits
- Protective for mid-level hits
- Fails for high impact hits

Does helmet padding "age"?

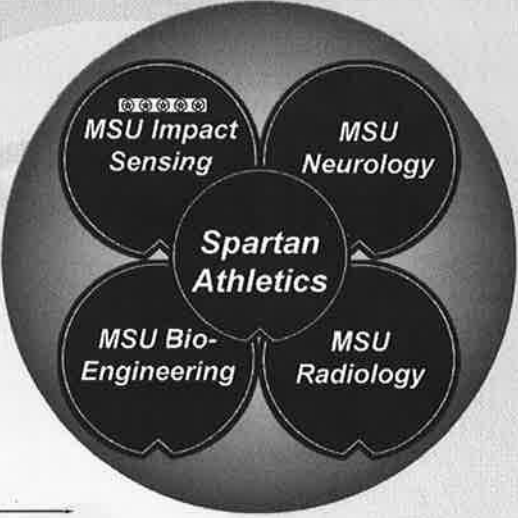
Are some helmets better?

Riddell 360 helmet, made in May, 2012

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### *Taking it to the Next Level*

- Identify the resources needed to advance this technology
  - Helmet performance
  - Clinical outcomes
  - Player documentation
- Integrate with MSU's research strengths to support our athletes
- Adapt technology to other sports and occupations



**Special Thanks**

Dr. David Kaufman Professor and Chair of MSU Neurology  
Dr. Sally Nogle Head Athletic Trainer, Intercollegiate Athletics

## OPTION AGREEMENT TERM SHEET

<b>Party:</b>	Genisama, LLC
<b>Agreement:</b>	Exclusive option of patent rights leading to an exclusive license
<b>Term:</b>	An initial option period beginning on the effective date and extending for 18 months, and an extended option period for an additional 12 months with an additional fee. Early termination by MSU possible for non-performance of due diligence requirements
<b>Technology:</b>	MSU Invention Disclosure No. TEC2006-0116 "Multilayer In-place Learning Networks"; TEC2008-0029 "Integrative Stereo through Topographic Sufficient Discriminant Networks"; TEC2009-0055 and US Patent No. 8,694,449 "Neuromorphic Spatiotemporal Where-What Machines"; TEC2012-0110 "Synapse Maintenance in Developmental Networks: The Skull-Closed Networks Suppress Background Pixels while Learning, Detecting, Segmenting, and Recognizing Natural Objects Directly from Cluttered Dynamic Scenes"; TEC2015-0120 "GENISAM Turing Machines Automatically Program for General Purposes"; US Patent No. 7,711,663 "Multi-Layer Developmental Network Having In-Place Learning"; US Patent Application No. 13/949,995 "Synapse Maintenance in Developmental Networks"; and US Patent Application No. 14/207,779 "Neuromorphic Spatiotemporal Where-What Machines". The parties may add or remove technologies under the agreement, including improvements generated internally or under a separate sponsored research agreement, provided that the change does not affect the financial consideration of the parties or the nature or extent of any pecuniary interest of MSU personnel.
<b>Potential Commercial Use:</b>	Machine vision, machine learning and artificial intelligence
<b>Payment Terms:</b>	\$1,000 for the initial option period, an additional \$2,000 for the extended option period
<b>Services Provided:</b>	By MSU to Genisama, LLC: None contemplated under agreement  By Genisama, LLC to MSU: None contemplated under agreement

**Organization**

**Type:** Michigan limited liability company

**Personnel**

**Interest:** Dr. Juyang Weng, a Professor in the Department of Computer Science and Engineering, and members of his family own or have options to buy an ownership interest of more than 1% of the company. Dr. Weng is anticipated to be a managing member of the LLC.

**MICHIGAN STATE**  
**U N I V E R S I T Y**

**APPENDIX C**

February 19, 2016

**MEMORANDUM**

**To:** Trustee Policy Committee

**From:** June Pierce Youatt  
Executive Vice President and Provost

**Subject:** Approval of Contract Terms: *Guangzhou Wolbaki Biotech Company Ltd.*

**RECOMMENDATION**

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *Guangzhou Wolbaki Biotech Company Ltd.*, a company in which faculty member Dr. Zhiyong Xi holds a financial interest.

**RESOLUTION**

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves a contract with *Guangzhou Wolbaki Biotech Company Ltd.*, consistent with earlier public notice given at a Board meeting and with a "Sponsored Research Agreement Term Sheet" now presented to the Board for inclusion in its minutes.

**BACKGROUND**

In compliance with State law, public notice of the University's intent to negotiate contracts with *Guangzhou Wolbaki Biotech Company Ltd.*, a company based in Guangzhou, Guangdong, China, was given at the Board of Trustees meeting on October 24, 2014. Terms of a contract are now being presented for the Board's approval.

Dr. Zhiyong Xi, an Associate Professor in the Department of Microbiology & Molecular Genetics, and members of his family own or have options to buy an ownership interest of more than 1% of the company.

The attached "Sponsored Research Agreement Term Sheet" summarizes the agreement that MSU has negotiated with *Guangzhou Wolbaki Biotech Company Ltd.*

cc: Trustee Finance Committee, L.A.K. Simon, S. Udpa, B. Beekman, S. Hsu, R. Noto, B. Mattes, K. Zayko, C. Berg



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## **SPONSORED RESEARCH AGREEMENT TERM SHEET**

**Party:** Guangzhou Wolbaki Biotech Company Ltd.

**Agreement:** Sponsored Research Agreement: "Improving Wolbachia Transinfection for Challenging Host Systems"

**Term:** March 1, 2016 to December 31, 2017

**Payment Terms:** \$320,684

**Services Provided:**

By MSU to Guangzhou Wolbaki Biotech Company Ltd.: Research to study how the endosymbiotic bacterium known as wolbachia (intracellular alphaproteobacteria) is regulated in novel hosts and how a transinfection technique can be improved to facilitate the formation of a novel symbiosis in difficult biological systems

By Guangzhou Wolbaki Biotech Company Ltd. to MSU: None contemplated under agreement

**Use of University Facilities/ Personnel:** Dr. Zhiyong Xi, an Associate Professor in the Department of Microbiology and Molecular Genetics, will engage in research and provide the services described above.

**Organization Type:** Chinese company based in Guangzhou, China

**Personnel Interest:** Dr. Zhiyong Xi, an Associate Professor in the Department of Microbiology and Molecular Genetics, and members of his family own or have options to buy an ownership interest of more than 1% of the company.

**MICHIGAN STATE**  
**U N I V E R S I T Y**

**APPENDIX D**

February 19, 2016

**MEMORANDUM**

**To:** Trustee Policy Committee

**From:** June Pierce Youatt  
Executive Vice President and Provost

**Subject:** Approval of Contract Terms: *Kopess Biomass Solutions, LLC* (Option Agreement)

**RECOMMENDATION**

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *Kopess Biomass Solutions, LLC*, a company in which faculty members Dr. Kyung-Hwan Han and Dr. Daniel E. Keathley hold a financial interest.

**RESOLUTION**

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves an option agreement with *Kopess Biomass Solutions, LLC*, consistent with earlier public notice given at a Board meeting and with an "Option Agreement Term Sheet" now presented to the Board for inclusion in its minutes.

**BACKGROUND**

In compliance with State law, public notice of the University's intent to negotiate contracts with *Kopess Biomass Solutions, LLC*, a Michigan limited liability company, was given at the Board of Trustees meetings on September 11, 2015 and December 18, 2015. Terms of an option agreement are now being presented for the Board's approval.

Dr. Kyung-Hwan Han and Dr. Daniel E. Keathley, both Professors in the Department of Horticulture, and Okran Han, an employee in the Department of Horticulture, and members of their families own or have options to buy an ownership interest of more than 1% of the company.

The attached "Option Agreement Term Sheet" summarizes the agreement that MSU has negotiated with *Kopess Biomass Solutions, LLC*.

cc: Trustee Finance Committee, L.A.K. Simon, S. Udpa, B. Beekman, S. Hsu, R. Noto, B. Mattes, K. Zayko, C. Berg



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## OPTION AGREEMENT TERM SHEET

**Party:** Kopess Biomass Solutions, LLC

**Agreement:** Exclusive option to license patent rights and materials

**Term:** An initial option period beginning on the effective date and extending until February 28, 2017, and two extended option periods for an additional 12 months, each with an additional fee

**Technology:** MSU Invention Disclosure No. TEC2009-0131 and US Patent Application Serial No. 13/821,095 "Utility Promoters for Biomass Feedstock Biotechnology"; TEC2011-0100 and US Patent Application Serial No. 14/381,040 and Canadian Patent Application No. 2,865,787 "Control of Cellulose Biosynthesis"; and TEC 2013-0123 "Pathway-Specific Biomass Engineering". The parties may add or remove technologies under the agreement, including improvements generated internally or under a separate sponsored research agreement, provided that the change does not affect the financial consideration of the parties or the nature or extent of any pecuniary interest of MSU personnel.

**Potential Commercial Use:** Increase growth rate and wood density in trees

**Payment Terms:** \$1,000 for the initial option period, an additional \$2,000 for the first 12-month extended option period, and an additional \$4,000 for the second 12-month extended option period

**Services Provided:**  
By MSU to Kopess Biomass Solutions, LLC: Services provided under separate contract (subcontract of Department of Energy grant to Kopess Biomass Solutions, LLC)  
  
By Kopess Biomass Solutions, LLC to MSU: None contemplated under agreement

**Organization Type:** Michigan limited liability company

**Personnel Interest:** Dr. Kyung Hwan Han and Dr. Daniel E. Keathley, both Professors in the Department of Horticulture, and Okran Han, an employee in the Department of Horticulture, and members of their families own or have options to buy an ownership interest of more than 1% of the company.

**MICHIGAN STATE**  
**U N I V E R S I T Y**

**APPENDIX E**

February 19, 2016

**MEMORANDUM**

**To:** Trustee Policy Committee

**From:** June Pierce Youatt  
Executive Vice President and Provost

**Subject:** Approval of Contract Terms: *Kopess Biomass Solutions, LLC* (Rights Allocation)

**RECOMMENDATION**

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *Kopess Biomass Solutions, LLC*, a company in which faculty members Dr. Kyung-Hwan Han and Dr. Daniel E. Keathley hold a financial interest.

**RESOLUTION**

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves a contract with *Kopess Biomass Solutions, LLC*, consistent with earlier public notice given at a Board meeting and with a "Rights Allocation Agreement Term Sheet" now presented to the Board for inclusion in its minutes.

**BACKGROUND**

In compliance with State law, public notice of the University's intent to negotiate contracts with *Kopess Biomass Solutions, LLC*, a Michigan limited liability company, was given at the Board of Trustees meetings on September 11, 2015 and December 18, 2015. Terms of a contract are now being presented for the Board's approval.

Dr. Kyung-Hwan Han and Dr. Daniel E. Keathley, both Professors in the Department of Horticulture, and Okran Han, an employee in the Department of Horticulture, and members of their families own or have options to buy an ownership interest of more than 1% of the company.

The attached "Rights Allocation Agreement Term Sheet" summarizes the agreement that MSU has negotiated with *Kopess Biomass Solutions, LLC*.

cc: Trustee Finance Committee, L.A.K. Simon, S. Udpa, B. Beekman, S. Hsu, R. Noto, B. Mattes, K. Zayko, C. Berg



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## **RIGHTS ALLOCATION AGREEMENT TERM SHEET**

**Party:** Kopess Biomass Solutions, LLC

**Agreement:** Allocation of rights in intellectual property and rights to carry out follow-on research, development, or commercialization. This agreement is required by the Department of Energy under the Prime Award (grant number TBD) from Grant Application No. 12023519 and relates to Sponsored Research Agreement Subcontract: "(STTR Phase I) Advanced Biomass Tree Crop Technology".

**Term:** Concurrent with the SRA Subcontract Term - Effective date to November 16, 2016

**Rights Allocation:** Ownership of intellectual property rights created under the Subcontract described above shall be consistent with MSU's Patent and Copyright Policies. Kopess will have an option to acquire rights to MSU technology developed with the STTR funds provided under the Subcontract. Kopess shall disclose to MSU any potential conflicts of interest between MSU and MSU employees who may also be employees, consultants, shareholders, or directors of Kopess. The company shall cooperate with MSU with respect to the MSU Faculty Conflict of Interest Policy and Outside Work for Pay Policy, and shall work constructively with MSU to manage and mitigate any conflicts that may arise in the course of this and related agreements between it and MSU.

**Organization Type:** Michigan limited liability company

**Personnel Interest:** Dr. Kyung-Hwan Han and Dr. Daniel E. Keathley, both Professors in the Department of Horticulture, and Okran Han, an employee in the Department of Horticulture, and members of their families own or have options to buy an ownership interest of more than 1% of the company.

**MICHIGAN STATE**  
**U N I V E R S I T Y**

**APPENDIX F**

February 19, 2016

**MEMORANDUM**

**To:** Trustee Policy Committee

**From:** June Pierce Youatt  
Executive Vice President and Provost

**Subject:** Approval of Contract Terms: *Kopess Biomass Solutions, LLC* (SRA)

**RECOMMENDATION**

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *Kopess Biomass Solutions, LLC*, a company in which faculty members Dr. Kyung-Hwan Han and Dr. Daniel E. Keathley hold a financial interest.

**RESOLUTION**

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves a contract with *Kopess Biomass Solutions, LLC*, consistent with earlier public notice given at a Board meeting and with a "Sponsored Research Agreement Term Sheet" now presented to the Board for inclusion in its minutes.

**BACKGROUND**

In compliance with State law, public notice of the University's intent to negotiate contracts with *Kopess Biomass Solutions, LLC*, a Michigan limited liability company, was given at the Board of Trustees meetings on September 11, 2015 and December 18, 2015. Terms of a contract are now being presented for the Board's approval.

Dr. Kyung-Hwan Han and Dr. Daniel E. Keathley, both Professors in the Department of Horticulture, and Okran Han, an employee in the Department of Horticulture, and members of their families own or have options to buy an ownership interest of more than 1% of the company.

The attached "Sponsored Research Agreement Term Sheet" summarizes the agreement that MSU has negotiated with *Kopess Biomass Solutions, LLC*.

cc: Trustee Finance Committee, L.A.K. Simon, S. Udpa, B. Beekman, S. Hsu, R. Noto, B. Mattes, K. Zayko, C. Berg



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## **SPONSORED RESEARCH AGREEMENT TERM SHEET**

**Party:** Kopess Biomass Solutions, LLC

**Agreement:** Subcontract under U.S. Department of Energy (grant number TBD, prime award from Grant Application No. 12023519):  
Sponsored Research Agreement Subcontract: "(STTR Phase I)  
Advanced Biomass Tree Crop Technology"

**Term:** Effective date to November 16, 2016

**Payment Terms:** MSU awarded \$103,244 in reimbursements under the grant for services provided

**Services Provided:**  
By MSU to Kopess Biomass Solutions, LLC: Genetic modification of hybrid poplar with genetic constructs anticipated to increase both growth rate and wood density. Initial lab work at MSU will entail transformation of poplar lines, verification of the transformed genotypes, and identification of high, medium, and low expression lines. Plant material planted and field tested. Initial growth assessment made following the 2016 growing season. All genetically modified plant material will be harvested and destroyed.  
  
By Kopess Biomass Solutions, LLC to MSU: None contemplated under agreement

**Use of University Facilities/ Personnel:** Drs. Kyung-Hwan Han and Daniel E. Keathley, both Professors in the Department of Horticulture, and individuals supervised by them, will provide the services described above. Plant material will be planted and field tested on the south campus at MSU.

**Organization Type:** Michigan limited liability company

**Personnel Interest:** Dr. Kyung-Hwan Han and Dr. Daniel E. Keathley, both Professors in the Department of Horticulture, and Okran Han, an employee in the Department of Horticulture, and members of their families own or have options to buy an ownership interest of more than 1% of the company.

**MICHIGAN STATE**  
**U N I V E R S I T Y**

**APPENDIX G**

February 19, 2016

**MEMORANDUM**

**To:** Trustee Policy Committee

**From:** June Pierce Youatt  
Executive Vice President and Provost

**Subject:** Approval of Contract Terms: *Maven Business Development, LLC*

**RECOMMENDATION**

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *Maven Business Development, LLC*, a company in which faculty members Dr. William Donohue, Dr. Charles Owen, and Dr. Richard Spreng hold a financial interest.

**RESOLUTION**

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves an option agreement with *Maven Business Development, LLC*, consistent with earlier public notice given at a Board meeting and with an "Option Agreement Term Sheet" now presented to the Board for inclusion in its minutes.

**BACKGROUND**

In compliance with State law, public notice of the University's intent to negotiate contracts with *Maven Business Development, LLC*, a Michigan limited liability company, was given at the Board of Trustees meeting on October 30, 2015. Terms of an option agreement are now being presented for the Board's approval.

Dr. William Donohue, a Professor in the Department of Communication, Dr. Charles Owen, an Associate Professor in the Department of Computer Science and Engineering, and Dr. Richard Spreng, an Associate Professor in the Department of Marketing, and members of their families own or have options to buy an ownership interest of more than 1% of the company.

The attached "Option Agreement Term Sheet" summarizes the agreement that MSU has negotiated with *Maven Business Development, LLC*.

cc: Trustee Finance Committee, L.A.K. Simon, S. Udpa, B. Beekman, S. Hsu, R. Noto, B. Mattes, K. Zayko, C. Berg



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### **OPTION AGREEMENT TERM SHEET**

**Party:** Maven Business Development, LLC

**Agreement:** Exclusive option of copyright and patent rights leading to an exclusive license

**Term:** February 20, 2016 to February 20, 2017

**Technology:** MSU Invention Disclosure No. TEC2015-0133 related to Maven Quotient software, process, protocol, and algorithm

**Potential Commercial Use:** Marketing Tool to determine the level of influence an individual demonstrates with respect to consumer goods and services

**Payment Terms:** \$1,000

**Services Provided:**

By MSU to Maven Business Development, LLC: None contemplated under agreement

By Maven Business Development, LLC to MSU: None contemplated under agreement

**Organization Type:** Michigan limited liability company

**Personnel Interest:** Dr. William Donohue, a Professor in the Department of Communication, Dr. Charles Owen, an Associate Professor in the Department of Computer Science and Engineering, and Dr. Richard Spreng, an Associate Professor in the Department of Marketing, and members of their families own or have options to buy an ownership interest of more than 1% of the company.

**MICHIGAN STATE**  
**U N I V E R S I T Y**

**APPENDIX H**

February 19, 2016

**MEMORANDUM**

**To:** Trustee Policy Committee

**From:** June Pierce Youatt  
Executive Vice President and Provost

**Subject:** Approval of Contract Terms: *MTBIsense, LLC*

**RECOMMENDATION**

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *MTBIsense, LLC*, a company in which faculty members Dr. Gary Blanchard and Dr. Marcos Dantus hold a financial interest.

**RESOLUTION**

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves an option agreement with *MTBIsense, LLC*, consistent with earlier public notice given at a Board meeting and with an "Option Agreement Term Sheet" now presented to the Board for inclusion in its minutes.

**BACKGROUND**

In compliance with State law, public notice of the University's intent to negotiate contracts with *MTBIsense, LLC*, a Michigan limited liability company, was given at the Board of Trustees meeting on December 18, 2015. Terms of an option agreement are now being presented for the Board's approval.

Dr. Gary Blanchard and Dr. Marcos Dantus, both Professors in the Department of Chemistry, and members of their families own or have options to buy an ownership interest of more than 1% of the company.

The attached "Option Agreement Term Sheet" summarizes the agreement that MSU has negotiated with *MTBIsense, LLC*.

cc: Trustee Finance Committee, L.A.K. Simon, S. Udpa, B. Beekman, S. Hsu, R. Noto, B. Mattes, K. Zayko, C. Berg



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## OPTION AGREEMENT TERM SHEET

<b>Party:</b>	MTBIsense, LLC
<b>Agreement:</b>	Exclusive option of patent rights leading to an exclusive license
<b>Term:</b>	An initial option period beginning on the effective date of the agreement and extending for 24 months, and extended option period for an additional 12 months with an additional fee. Early termination by MSU possible for non-performance of due diligence requirements
<b>Technology:</b>	<p>MSU Invention Disclosure No. TEC2016-0005 "Digital to Analog Impact Recorder"; and US Provisional Patent Application No. 62/234,107 "Materials and Apparatus with Multiple Impact Level and Torque Detection".</p> <p>The parties may add or remove technologies under the agreement, including improvements generated internally or under a separate sponsored research agreement, provided that the change does not affect the financial consideration of the parties or the nature or extent of any pecuniary interest of MSU personnel.</p>
<b>Potential Commercial Use:</b>	Impact-sensing devices for application to digital-to-analog impact recorders
<b>Payment Terms:</b>	\$1,000 for the initial option period, an additional \$2,000 for the extended option period
<b>Services Provided:</b>	<p>By MSU to MTBIsense, LLC: None contemplated under Agreement</p> <p>By MTBIsense, LLC to MSU: None contemplated under agreement</p>
<b>Organization Type:</b>	Michigan limited liability company
<b>Personnel Interest:</b>	Dr. Gary Blanchard and Dr. Marcos Dantus, both Professors in the Department of Chemistry, and members of their families own or have options to buy an ownership interest of more than 1% of the company. Both Professors Blanchard and Dantus are anticipated to be managing members of the LLC.

**MICHIGAN STATE**  
**U N I V E R S I T Y**

**APPENDIX I**

February 19, 2016

**MEMORANDUM**

**To:** Trustee Policy Committee

**From:** June Pierce Youatt  
Executive Vice President and Provost

**Subject:** Approval of Contract Terms: *Piezonix, LLC*

**RECOMMENDATION**

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *Piezonix, LLC*, a company in which faculty member Dr. Nizar Lajnef holds a financial interest.

**RESOLUTION**

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves a license agreement with *Piezonix, LLC*, consistent with earlier public notice given at a Board meeting and with an "License Agreement Term Sheet" now presented to the Board for inclusion in its minutes.



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**BACKGROUND**

In compliance with State law, public notice of the University's intent to negotiate contracts with *Piezonix, LLC*, a Michigan limited liability company, was given at the Board of Trustees meeting on December 18, 2015. Terms of a license agreement are now being presented for the Board's approval.

Dr. Nizar Lajnef, an Associate Professor in the Department of Civil and Environmental Engineering, and members of his family own or have options to buy an ownership interest of more than 1% of the company.

The attached "License Agreement Term Sheet" summarizes the agreement that MSU has negotiated with *Piezonix, LLC*.

cc: Trustee Finance Committee, L.A.K. Simon, S. Udpa, B. Beekman, S. Hsu, R. Noto, B. Mattes, K. Zayko, C. Berg

## **LICENSE AGREEMENT TERM SHEET**

**Party:** Piezonix, LLC

**Agreement:** Exclusive license of patent rights

**Term:** Extending from the effective date until the expiration of the last patent

**Technology:** MSU Invention Disclosure No. TEC2006-0098 "Self-Powered Sensor"; MSU Invention Disclosure No. TEC2009-0014 "Self-Powered Sensor"; US Patent No. 7,757,565 "Self-Powered Sensor"; and US Patent No. 8,056,420 "Self-Powered Sensor". The parties may add or remove technologies under the agreement, including improvements generated internally or under a separate sponsored research agreement, provided that the change does not affect the financial consideration of the parties or the nature or extent of any pecuniary interest of MSU personnel.

**Potential Commercial Use:** Self-powered sensors attached to, or embedded in, structural materials or components for monitoring stress history on the materials or components

**Payment Terms:** MSU will receive 6% equity in Piezonix, LLC, payment of a running royalty of 2% of net sales, and 25% of all sublicensing non-royalty revenues

**Services Provided:** By MSU to Piezonix, LLC: None contemplated under agreement  
By Piezonix, LLC to MSU: None contemplated under agreement

**Organization Type:** Michigan limited liability company

**Personnel Interest:** Dr. Nizar Lajnef, an Associate Professor in the Department of Civil and Environmental Engineering, and members of his family own or have options to buy an ownership interest of more than 1% of the company. Dr. Lajnef is anticipated to be a managing member of the LLC.

**MICHIGAN STATE**  
**U N I V E R S I T Y**

**APPENDIX J**

February 19, 2016

**MEMORANDUM**

**To:** Trustee Policy Committee

**From:** June Pierce Youatt  
Executive Vice President and Provost

**Subject:** Approval of Contract Terms: *QuantumBio, Inc.*

**RECOMMENDATION**

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *QuantumBio, Inc.*, a company in which faculty member Dr. Kenneth M. Merz, Jr. holds, a financial interest.

**RESOLUTION**

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves a license agreement with *QuantumBio, Inc.*, consistent with earlier public notice given at a Board meeting and with a "License Agreement Term Sheet" now presented to the Board for inclusion in its minutes.



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**BACKGROUND**

In compliance with State law, public notice of the University's intent to negotiate contracts with *QuantumBio, Inc.*, a Delaware corporation, was given at the Board of Trustees meeting on April 12, 2013. Terms of a license agreement are now being presented for the Board's approval.

Dr. Kenneth M. Merz, a Professor in the Departments of Chemistry and Biochemistry & Molecular Biology, and members of his family own or have options to buy an ownership interest of more than 1% of the company.

The attached "License Agreement Term Sheet" summarizes the agreement that MSU has negotiated with *QuantumBio, Inc.*

cc: Trustee Finance Committee, L.A.K. Simon, S. Udpa, B. Beekman, S. Hsu, R. Noto, B. Mattes, K. Zayko, C. Berg

## LICENSE AGREEMENT TERM SHEET

**Party:** QuantumBio, Inc.

**Agreement:** Exclusive license of patents and copyrights to computer software in the field of protein-ligand binding

**Term:** Extending from the effective date until the later of the expiration or termination of the patent rights or 20 years from the effective date

**Technology:** MSU Invention Disclosure No. TEC2015-0043 "Moveable Type Method Applied to Protein-Ligand Binding" (Patent Cooperation Treaty application no. PCT/US2014/063328)

**Potential Commercial Use:** Software for modeling protein-ligand binding

**Payment Terms:** MSU will receive an upfront license fee of \$20,000 with the final payment of the upfront fee to be due no later than 18 months after the effective date, and royalties of 12% of net revenue during years 1-3 following the first commercial sale, 10% of net revenue during years 4-6 following the first commercial sale, and 7% of net revenue after year 6 following the first commercial sale.

**Services Provided:**

By MSU to QuantumBio, Inc.: None contemplated under agreement

By QuantumBio, Inc. to MSU: None contemplated under agreement

**Organization Type:** Delaware corporation

**Personnel Interest:** Dr. Kenneth M. Merz, Jr., a Professor in the Department Chemistry and Biochemistry & Molecular Biology, and members of his family own or have options to buy an ownership interest of more than 1% of the company. Dr. Merz is an officer of the company.

## APPENDIX K

**MICHIGAN STATE**  
**U N I V E R S I T Y**  
February 19, 2016

### MEMORANDUM

**To:** Trustee Policy Committee

**From:** June Pierce Youatt  
Executive Vice President and Provost

**Subject:** Approval of Contract Terms: *RecordWear, LLC*

### RECOMMENDATION

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *RecordWear, LLC*, a company in which faculty members Dr. Gary Blanchard and Dr. Marcos Dantus hold a financial interest.

### RESOLUTION

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves an option agreement with *RecordWear, LLC*, consistent with earlier public notice given at a Board meeting and with an "Option Agreement Term Sheet" now presented to the Board for inclusion in its minutes.

### BACKGROUND

In compliance with State law, public notice of the University's intent to negotiate contracts with *RecordWear, LLC*, a Michigan limited liability company, was given at the Board of Trustees meeting on December 18, 2015. Terms of an option agreement are now being presented for the Board's approval.

Dr. Gary Blanchard and Dr. Marcos Dantus, both Professors in the Department of Chemistry, and members of their families own or have options to buy an ownership interest of more than 1% of the company.

The attached "Option Agreement Term Sheet" summarizes the agreement that MSU has negotiated with *RecordWear, LLC*.

cc: Trustee Finance Committee, L.A.K. Simon, S. Udpa, B. Beekman, S. Hsu, R. Noto, B. Mattes, K. Zayko, C. Berg



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## OPTION AGREEMENT TERM SHEET

**Party:** RecordWear, LLC

**Agreement:** Exclusive option of patent rights leading to an exclusive license

**Term:** An initial option period beginning on the effective date and extending for 24 months, and an extended option period for an additional 12 months with an additional fee. Early termination by MSU possible for non-performance of due diligence requirements

**Technology:** MSU Invention Disclosure No. TEC2014-0073 "Materials with Optically-Addressable Compressions Memory"; Patent Cooperation Treaty Patent Application No. PCT/US2015/040883 "Materials with Detectable Compression Memory"; design documentation, manufacturing and calibration methods, suppliers, and other know-how related to manufacture of compression recording material. The parties may add or remove technologies under the agreement, including improvements generated internally or under a separate sponsored research agreement, provided that the change does not affect the financial consideration of the parties or the nature or extent of any pecuniary interest of MSU personnel.

**Potential Commercial Use:** Compression recording material for impact sensing devices involving materials with optically-addressable compression memory

**Payment Terms:** \$1,000 for the initial option period, an additional \$2,000 for the extended option period

**Services Provided:**  
By MSU to RecordWear, LLC: None contemplated under agreement  
By RecordWear, LLC to MSU: None contemplated under agreement

**Organization Type:** Michigan limited liability company

**Personnel Interest:** Dr. Gary Blanchard and Dr. Marcos Dantus, both Professors in the Department of Chemistry, and members of their families own or have options to buy an ownership interest of more than 1% of the company. Both Professors Blanchard and Dantus are anticipated to be managing members of the LLC.