

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

June 20, 2014

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, Mitch Lyons, Brian Mosallam, Faylene Owen, and Diann Woodard.

Trustees absent: George Perles.

University officers present: President Simon, Provost and Executive Vice President Youatt, Executive Vice President Udpal, Vice President and Secretary Beekman, Vice President and General Counsel Noto, Vice Presidents Burnham, Dawkins, Gore, Groves, Haas, Hsu, Maybank, and Swain, and Senior Advisor and Director Granberry Russell. Faculty liaisons present: William Donohue, Sue Carter, and Mary Noel. Student liaisons present: James Conwell, Dontae Freeman, and Mandie Maxwell.

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 Ferguson, supported by Trustee Owen, the **BOARD VOTED to approve** the minutes of the April 22, 2014 Board of Trustees meeting.
3. President's Report

President Simon provided the following report to the Board.

A. 2014 CASE Circle of Excellence Award Winner and Telly Awards

Communications and Brand Strategy received a gold award for the printed version of the 2012 President's Report: SPARTANS WILL.360. The photo-video team has been recognized with three Telly Awards for production and has been nominated for five Emmys.

B. MSU Named the Michigan 2014 Engaged Campus of the Year

MSU was honored as the recipient of Michigan's 2014 Engaged Campus of the Year award. The collective and sustained engagement efforts of every college, division, student, faculty, staff, and alum earned this important recognition.

C. Doug Estry Honored by National Academic Advising Association

Douglas Estry, Associate Provost for Undergraduate Education and Dean of Undergraduate Studies at MSU, is the recipient of the Michael C. Holen Pacesetter Award from the National Academic Advising Association. This award recognizes executive officers who exemplify a commitment to academic advising and are advocates for advising students, and advisors across the institution.

D. MSU Student Accepted into the Presidential Fellows Program

Kent Dell will be MSU's participant in the Presidential Fellows Program for 2014-15. This is a fellowship to conduct research under the mentorship of associates at the Center for the Study of the Presidency and Congress in Washington, D.C. Kent will simultaneously be completing the Master of Public Policy program at MSU.

E. Four Students Awarded Boren Scholarships

Four students are recipients of a Boren Scholarship to study language abroad in areas that are critical to U.S. security interests. The students are pursuing majors in James Madison College and the College of Arts and Letters. Two of the four are also members of the Honors College.

F. 2014 American Medical Association Foundation's Minority Scholars Award

The American Medical Association Foundation will honor Nicolas K. Fletcher, a student representative to the Michigan State Medical Society Board of Directors, with a Minority Scholars Award at the AMA's annual Meeting. Nicolas was one of only 10 medical students in the country selected to receive this award, which was given in recognition of his academic achievement and commitment to the elimination of health care disparities.

G. Women of 2014

As a part of MSNBC's Women of 2014 series, Kiran Samra, ASMSU's Chief of Staff, was featured for her leadership, service, and dedication to the students of MSU. The series features promising women leaders in student government on college and university campuses across the country and will be featured on msnbc.com over the course of the year.

H. Plan Bee

Researchers at MSU, along with colleagues from 15 institutions throughout the country, are studying alternative pollination strategies, a sort of "crop insurance," using less common bee varieties for growers hit hard by colony collapse. The endeavor, known as the Integrated Crop Pollination project, is funded by the U.S. Department of Agriculture and is being led by MSU AgBioResearch entomologist Rufus Isaacs.

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

5. Personnel Actions

Provost Youatt presented the following personnel actions:

Ravlin, Forrest W., AN—Professor, Department of Entomology, \$205,000, with Tenure, effective August 1, 2014.

Wise, John C., AN—Professor, Department of Entomology, \$100,000, with Tenure, effective July 1, 2014.

Dutton, William H., AY—Professor, JH Quello Chair in Telecommunications Studies, Department of Telecommunications, Information Studies and Media, \$175,000, with Tenure, effective August 16, 2014.

Bouck, Emily C., AY—Associate Professor, Department of Counseling, Educational Psychology and Special Education, \$95,000, with Tenure, effective August 16, 2014.

Lee, Ka Lai Gloria, AY—Associate Professor, Department of Counseling, Educational Psychology and Special Education, \$86,000, with Tenure, effective August 16, 2014.

Volker, Martin A., AY—Associate Professor, Department of Counseling, Educational Psychology and Special Education, \$86,000, with Tenure, effective August 16, 2014.

Yadav, Aman, AY—Associate Professor, Department of Counseling, Educational Psychology and Special Education, \$90,000, with Tenure, effective August 16, 2014.

Parks, Amy N., AY—Associate Professor, Department of Teacher Education, \$85,000, with Tenure, effective August 16, 2014.

Verboncoeur, John, AY—Professor, Department of Electrical and Computer Engineering, \$139,550, with Tenure, effective July 1, 2014.

DeYoung, Tyce R., AY—Associate Professor, Department of Physics and Astronomy, \$108,000, with Tenure, effective August 16, 2014.

Anderson, Steven G., AN—Professor, School of Social Work, \$225,000, with Tenure, effective July 1, 2014.

Anastos, Thomas A., AN—Head Coach—Hockey, Intercollegiate Athletics, Subject to Contract, effective July 1, 2017 to June 30, 2018.

Hollis, Mark J., AN—Director of Intercollegiate Athletics, Subject to Contract, effective July 1, 2018 to June 30, 2019.

Izzo, Thomas, AN—Head Coach—Basketball, Intercollegiate Athletics, Subject to Contract, effective July 1, 2020 to June 30, 2021.

Rankan, Susan M (Suzy Merchant), AN—Head Coach—Women's Basketball, Intercollegiate Athletics, Subject to Contract, effective July 1, 2018 to June 30, 2019.

Gupta, Sanjay, AN—Associate Dean, Eli Broad College of Business; RE Palmer Professor, Accounting and Information Systems, to a change in title from Associate Dean to Acting Dean Designate, effective July 1, 2014 through July 31, 2014, and Acting Dean, Eli Broad College of Business and for a change in salary to \$397,000, effective August 1, 2014.

Baker, John C., AN—Professor, Large Animal Sciences; Associate Director, Michigan Agricultural Experiment Station, for a change in title to Dean, College of Veterinary Medicine and for a change in salary to \$250,000, effective June 9, 2014.

Trustee Owen **moved to approve** the recommendations, with support from Trustee Woodard.

THE BOARD VOTED to approve the recommendations.

6. Gifts, Grants, and Contracts

Vice President Hsu presented the Gifts, Grants, and Contracts Report for the period of April 3, 2014 through May 21, 2014. The report is a compilation of 381 Gifts, Grants and Contracts plus 28 Consignment/Non-Cash Gifts, with a total value of \$62,561,893.

Trustee Ferguson **moved to approve** the recommendation, with support from Trustee Owen.

THE BOARD VOTED to approve the recommendation.

Vice President Hsu introduced Irina Pushel, MSU undergraduate student majoring in Biochemistry and Molecular Biology/Biotechnology, with minors in French, Math, and Computer Science. Ms. Pushel made a presentation to the Board on fly eyes and cancer proteins. (Appendix A)

Vice President Hsu introduced Leah Harris, MSU graduate student in the Department of Agricultural, Food and Resource Economics. Ms. Harris made a presentation to the Board on conservation auctions to reduce algal blooms in Lake Erie. (Appendix B)

7. Finance Committee

Trustee Owen presented the Trustee Finance Committee Report and recommendations.

A. 2014-15 Budget Development Guidelines and 2015-16 Preliminary General Fund Budget Guidelines

It was recommended that the Board of Trustees adopt the 2014-15 Budget Development Guidelines and 2015-16 Preliminary General Fund Budget Guidelines, which include revenue and expenditure totals and tuition and fee rates for 2014-15 and revenue and expenditure totals and tuition and fee rates for 2015-16.

In accordance with the Budget Guidelines, the administration is directed to develop and implement the 2014-15 General Fund, MSU AgBioResearch, Michigan State University Extension, and Intercollegiate Athletics budgets.

To provide students and families an extended opportunity to plan, MSU has developed the Preliminary Guidelines. The Preliminary

Guidelines establish 2015-16 tuition and fee rates, revenue totals, and expenditure totals. The Preliminary Guidelines also establish the financial aid budget and the estimated State appropriation for 2015-16. The administration is directed to develop the 2015-16 Budget Development Guidelines in accordance with the Preliminary Guidelines.

Trustee Owen **moved to approve** the recommendation, with support from Trustee Ferguson.

THE BOARD VOTED to approve the recommendation.

B. Commercial Paper Reauthorization

It was recommended that the Board of Trustees authorize the issuance of Commercial Paper Notes, Series E, which will replace the expired Series D notes and adopt the related resolution in its entirety. (Appendix C)

Trustee Owen **moved to approve** the recommendation, with support from Trustee Breslin.

THE BOARD VOTED to approve the recommendation.

C. Reappointment of External Investment Advisory Subcommittee Member

It was recommended that the Board of Trustees reappoint Phil Zecher as an external member of the Investment Advisory Subcommittee.

Trustee Owen **moved to approve** the recommendation, with support from Trustee Breslin.

THE BOARD VOTED to approve the recommendation.

D. Fund Functioning as an Endowment

It was recommended that the Board of Trustees establish a fund functioning as an endowment entitled Erik James Sunday Scholarship Fund.

It was recommended that the Board of Trustees establish a fund functioning as an endowment entitled Virginia Albright Acting Scholarship.

It was recommended that the Board of Trustees establish a fund functioning as an endowment entitled The College of Human Medicine Scholarship Fund.

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

THE BOARD VOTED to approve the recommendations.

E. New Investment Manager—Venrock Capital Partners

It was recommended that the Board of Trustees select Venrock Capital Partners as an Investment Manager.

Trustee Owen **moved to approve** the recommendation, with support from Trustee Breslin.

THE BOARD VOTED to approve the recommendation.

F. Authorization to Plan—Facility for Rare Isotope Beams—Power Plant Connection

It was recommended that the Board of Trustees authorize the Administration to plan for the project entitled Facility for Rare Isotope Beams—Power Plant Connection.

Trustee Owen **moved to approve** the recommendation, with support from Trustee Lyons.

THE BOARD VOTED to approve the recommendation.

G. Authorization to Plan—Power Plant Capacity and Future Needs

It was recommended that the Board of Trustees authorize the Administration to plan for the project entitled Power Plant Capacity and Future Needs.

Trustee Owen **moved to approve** the recommendation, with support from Trustee Breslin.

THE BOARD VOTED to approve the recommendation.

H. Authorization to Plan—Breslin Student Events Center—Facility Updates

It was recommended that the Board of Trustees authorize the Administration to plan for the project entitled Breslin Student Events Center—Facility Upgrades.

Trustee Owen **moved to approve** the recommendation, with support from Trustee Ferguson.

THE BOARD VOTED to approve the recommendation.

I. Authorization to Plan—Berkowitz Basketball Complex—Alterations to Basketball Offices

It was recommended that the Board of Trustees authorize the Administration to plan for the project entitled Berkowitz Basketball Complex—Alterations to Basketball Offices.

Trustee Owen **moved to approve** the recommendation, with support from Trustee Breslin.

THE BOARD VOTED to approve the recommendation.

J. Authorization to Plan—Duffy Daugherty Football Building—Renovate Locker Room and Training Room

It was recommended that the Board of Trustees authorize the Administration to plan for the project entitled Duffy Daugherty Football Building—Renovate Locker Room and Training Room.

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

THE BOARD VOTED to approve the recommendation.

K. Authorization to Plan—Food Processing and Innovation Center

It was recommended that the Board of Trustees authorize the Administration to plan for the project entitled Food Processing and Innovation Center.

Trustee Owen **moved to approve** the recommendation, with support from Trustee Breslin.

THE BOARD VOTED to approve the recommendation.

- L. Project Approval—Authorization to Proceed—Kellogg Center—Replace Absorption Chilled Water System

It was recommended that the Board of Trustees authorize the Administration to proceed with the project entitled Kellogg Center—Replace Absorption Chilled Water System and that it approve a budget of \$2,700,000.

Trustee Owen **moved to approve** the recommendation, with support from Trustee Breslin.

THE BOARD VOTED to approve the recommendation.

- M. Project Approval—Authorization to Proceed—FRIB—Completion of Civil and Technical Construction

It was recommended that the Board of Trustees authorize the Administration to proceed with the project entitled Facility for Rare Isotope Beams—Completion of Civil and Technical Construction, and that it approve a budget of \$648,700,000.

Trustee Owen **moved to approve** the recommendation, with support from Trustee Breslin.

THE BOARD VOTED to approve the recommendation.

- N. Project Approval—Authorization to Proceed—T.B. Simon Power Plant—Sorbent Injection for Boiler 4

It was recommended that the Board of Trustees authorize the Administration to proceed with the project entitled T.B. Simon Power Plant—Sorbent Injection for Boiler 4, and that it approve a budget of \$4,500,000.

8. Policy Committee

Trustee Byrum presented the Trustee Policy Committee Report and recommendations.

- A. Revision to the *Student Rights and Responsibilities* document (formerly *Academic Freedom Report for Students*)

It was recommended that the Board of Trustees approve the revised *Student Rights and Responsibilities* (“SRR”) document (formerly known as the *Academic Freedom Report for Students*).

It was recommended to the Board of Trustees that revisions to the SRR take effect August 1, 2014, with the exception of revisions to Articles 6 and 7 of the SRR, which will take effect at the beginning of the 2015-16 academic year on August 16, 2015.

It was recommended that the Board of Trustees authorize the Provost to make minor editorial and other technical revisions to Articles 6 and 7 of the SRR that may become necessary during the implementation phase of those articles, with notice to the appropriate academic governance committees.

It was recommended that the Board of Trustees authorize the Provost to make any conforming changes to other University policies that will be necessary following this Board action.

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

THE BOARD VOTED to approve the recommendations.

B. Revision to the *Graduate Student Rights and Responsibilities* Document

It was recommended that the Board of Trustees approve the revised *Graduate Student Rights and Responsibilities* ("GSRR") document.

It was recommended that the Board of Trustees authorize the Provost to make any conforming changes to other University policies that will be necessary following this Board action.

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

THE BOARD VOTED to approve the recommendations.

C. Approval of Contract Terms

It was recommended that the Board of Trustees approve an agreement with *DataShark Corporation*, consistent with earlier public notice given at a Board meeting and with the "License Agreement Term Sheet" presented to the Board. (Appendix D)

It was recommended that the Board of Trustees approve an agreement with *Spartan Dawg, LLC*, consistent with earlier public notice given at a Board meeting and with the "Agreement Term Sheet" presented to the Board. (Appendix E)

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

THE BOARD VOTED to approve the recommendations.

D. Approval of Contract Terms

It was recommended that the Board of Trustees approve the execution of a publishing contract with Professor Laura Apol, consistent with earlier public notice given at a Board meeting and with the "Contract Term Sheet" presented to the Board. (Appendix F)

It was recommended that the Board of Trustees approve the execution of two publishing contracts with Professor Rita Kiki Edozie, consistent with earlier public notice given at a Board meeting and with the two "Contract Term Sheets" presented to the Board. (Appendix G)

It was recommended that the Board of Trustees approve the execution of a publishing contract with Professor Robert Richardson, consistent with earlier public notice given at a Board meeting and with the "Contract Term Sheet" presented to the Board. (Appendix H)

It was recommended that the Board of Trustees approve the execution of a publishing contract with Professor Anita Skeen, consistent with earlier public notice given at a Board meeting and with the "Contract Term Sheet" presented to the Board. (Appendix I)

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

THE BOARD VOTED to approve the recommendations.

E. Notice of Intent to Negotiate Contracts

Pursuant to State Law, Trustee Byrum gave public notice of the University's intent to negotiate a contract with Professor Curtis

Stokes regarding a publication by the MSU Press. Professor Stokes is a faculty member in the James Madison College.

9. Trustee Comments

Trustee Ferguson said that he enjoyed the student research presentations.

Trustee Woodard said that she appreciated the students sharing their research. She stated that the Board Retreat was productive and thanked her colleagues for all of their work on behalf of MSU.

Trustee Lyons said that he was impressed with the student presentations.

Trustee Owen asked Dr. Sue Carter, Faculty Liaison, to provide an overview of the discussion that occurred at the faculty liaison breakfast meeting.

Dr. Carter said that the group had a discussion regarding faculty research. Dr. Carter noted that the discussion fit nicely with the budget presentation and the undergraduate research presentation made at the Board meeting.

Trustee Byrum said that the Board Retreat provided valuable time for discussions regarding the future of MSU and she thanked everyone for their efforts.

Trustee Mosallam thanked Dave Byelich and Vice President and Secretary Beekman for all of the assistance they provided regarding budget questions.

Trustee Breslin congratulated Vice President Swain on the awards that Communications and Brand Strategy has been receiving. He also said that he is pleased that MSU is involved in Plan Bee.

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

11. Request to Adjourn

On a motion by Trustee Ferguson, supported by Trustee Breslin, **THE BOARD VOTED to adjourn** at 11:00 a.m.

Respectfully submitted,

A handwritten signature in green ink, appearing to read "W Beekman". The signature is fluid and cursive, with a large initial "W" and a trailing flourish.

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

RESEARCH PRESENTATION

TO THE MSU BOARD OF TRUSTEES

*****JUNE 20, 2014*****

IRINA PUSHEL

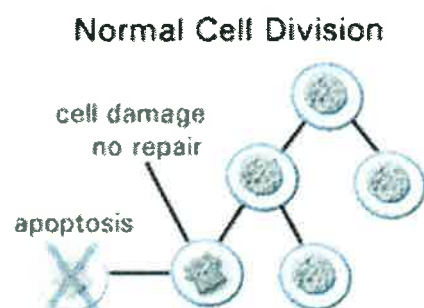
**COLLEGE OF NATURAL SCIENCE &
HONORS COLLEGE**

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

Irina Pushel is an undergraduate from Naperville, IL, going into her senior year. She is majoring in Biochemistry and Molecular Biology/Biotechnology, with minors in French, Math, and Computer Science. She initially selected MSU because of its opportunities for undergraduate research, and has not been disappointed. Upon being accepted to MSU, she was offered a Professorial Assistantship by the Honors College which provides a research mentor and support for two years. This landed her in the lab of David Arnosti in the Department of Biochemistry and Molecular Biology, studying gene regulation in the fruit fly. She has continued working in the Arnosti lab with support from the College of Natural Science and the Honors College, and has also been part of the Dean's Research Program through the College of Natural Science. After graduating next spring, she plans to pursue a PhD in molecular biology. She is passionate about cutting-edge methods in computational biology and particularly interested in applying such modeling tools to answer fundamental research questions in the field.

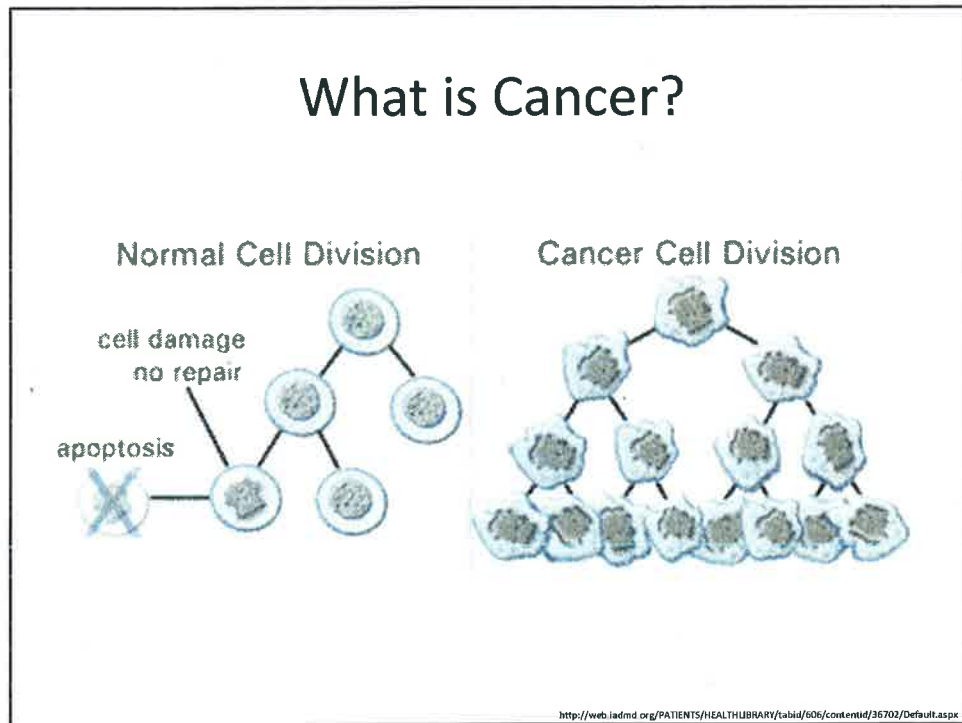


What is Cancer?



<http://web.utdmb.org/PATIENTS/HEALTHLIBRARY/tubid/506/contentid/35702/Default.aspx>

What is Cancer?

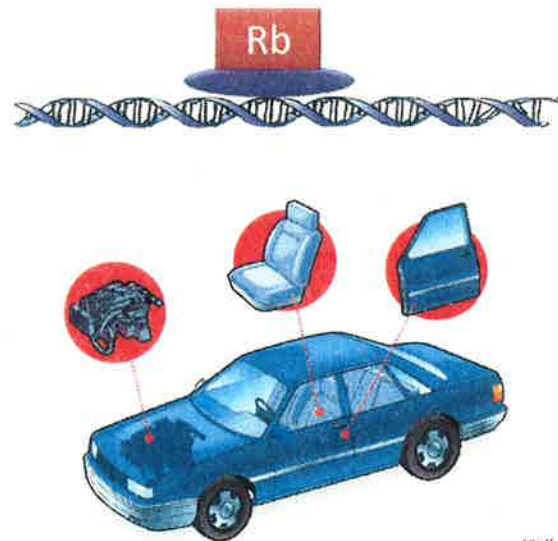


Rb Controls Gene Expression



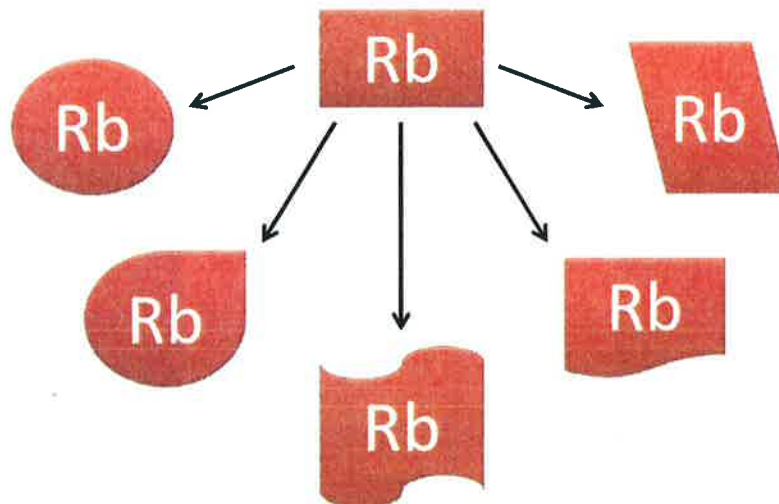
<http://www.chelationtherapyonline.com/articles/p174.htm>

Rb Controls Gene Expression



<http://www.xorflot.com/kevintankiewicz/digital-infographics>

Understanding Rb



Mutant Effects



Wild type

Mutant Effects



Wild type



Moderate

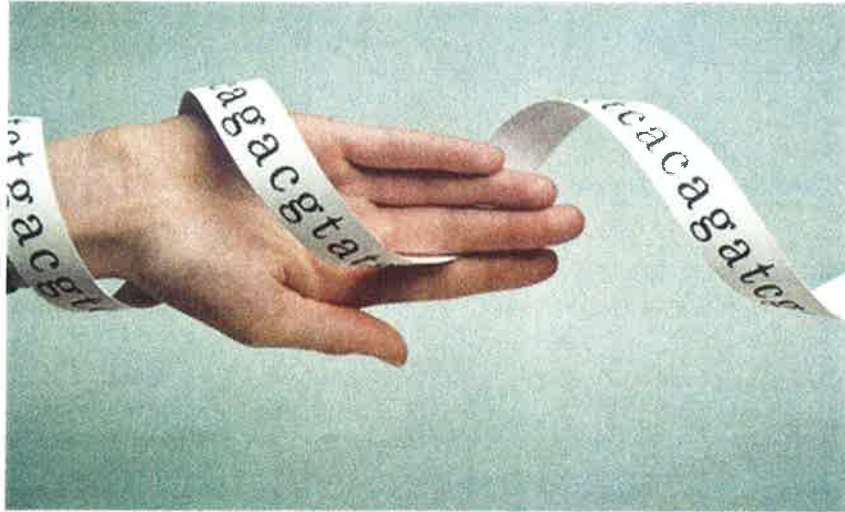


Very Severe



Very Severe (outgrowth)

Significance



<http://www.genengnews.com/gen-news-highlights/illuminas-cuts-price-for-individual-genome-sequencing-service-by-more-than-half/8124388/>

Acknowledgements



Dr. David Arnosti
and the
Arnosti Lab

College of **Natural Science**

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MICHIGAN STATE
UNIVERSITY

Biochemistry & Molecular Biology

Leah Harris Introduction Paragraph

Our next speaker is Leah Harris, a fourth year PhD student in the Department of Agricultural, Food, and Resource Economics. Leah is from Ashland, Virginia and before joining Michigan State University she completed her Bachelor's and Master's degrees at Virginia Tech in Agricultural and Applied Economics with a focus on agriculture in developing countries. Now, she works with Professor Scott Swinton to design and test conservation programs that are good for the environment while supporting productive and profitable agriculture. Today, Leah will be presenting some of her doctoral research on conservation auctions where farmers bid to adopt new management practices that keep Lake Erie clean.

GOING ONCE, GOING TWICE, SOLD!

Using Conservation Auctions to Reduce Algal Blooms in Lake Erie



Leah M. Harris

with Scott M. Swinton and Robert S. Shupp
Agricultural, Food, & Resource Economics

MSU Board of Trustees Meeting

June 20, 2014

Excess Nutrients Threaten Lake Erie

MICHIGAN STATE
UNIVERSITY

The Detroit News

Metro and State Michigan

FEBRUARY 27, 2014 — 11:48 PM

Report: Lake Erie's health threatened, needs nutrient diet

JIM LYNCH THE DETROIT NEWS 16 COMMENTS

© EcoWatch.org



© www.nsf.gov



Agricultural nutrient loss is the primary source of phosphorus in Lake Erie.

Farmers have property rights.

Payments for environmental services (PES)

- How much should we pay?
- What form of payment?



What can we learn from auctions?

Procurement (reverse) auction

Allows multiple landowners (sellers of environmental services) to compete for conservation contracts from one buyer.

- ❖ Cost-effectively allocate resources
- ❖ Learn about farmer preferences for conservation incentives



Testing incentives



Incentive Types

- Direct payment
- Green insurance
- Tax credit
- Price premium tied to certification

Summary results

Cost-effectiveness of accepted contracts for in-field* practices



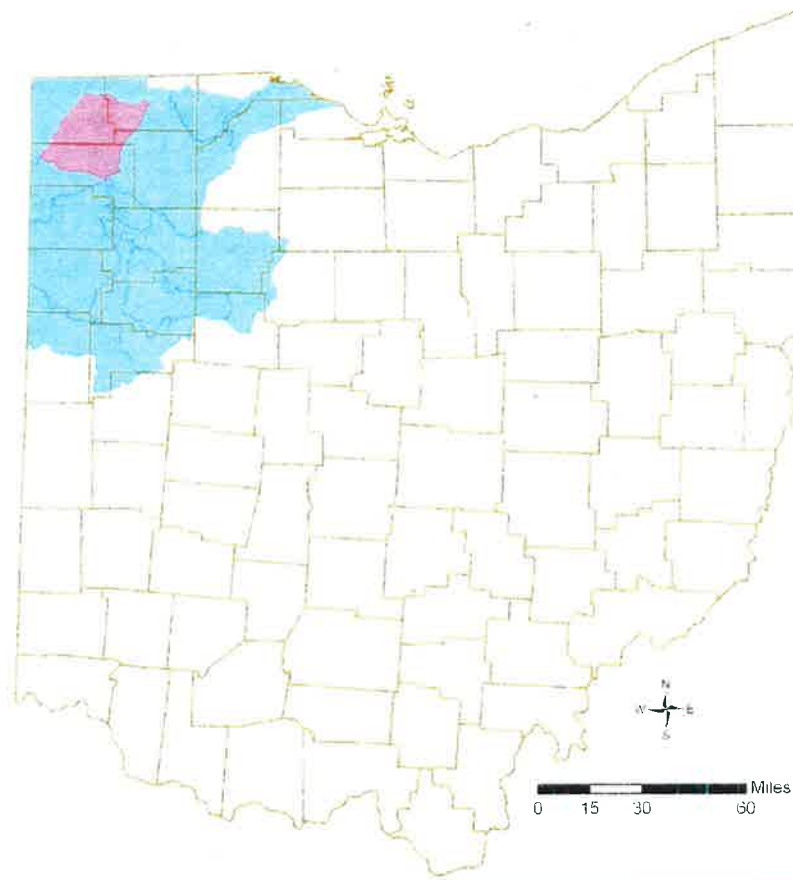
* Excluding filter strips

Upcoming research

MICHIGAN STATE
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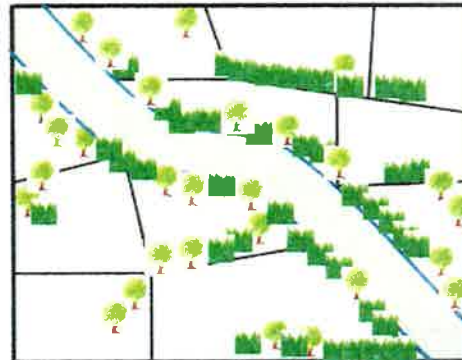
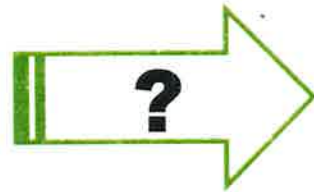
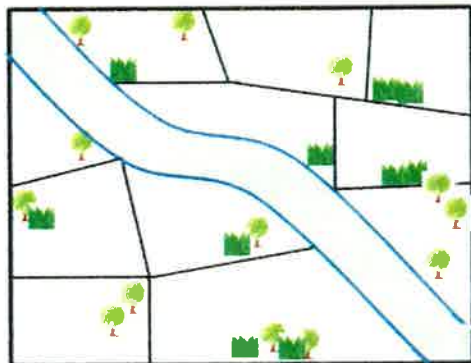
Real conservation auctions in the Maumee Watershed

- ❖ Working with Soil & Water Conservation Districts



Two Objectives for BMP Auctions

1. Joint contracts may be useful when coordination is necessary – e.g. connecting filter strips



2. How does information about potential environmental outcomes impact farmer bids for conservation practices?



Acknowledgements

- Great Lakes Protection Fund
- GLWESS Partners –
 - **LimnoTech:** Joe Depinto, Todd Redder and Amanda Flynn
 - **The Nature Conservancy:** Scott Sowa, Carrie Volmer-Sanders, and Denny McGrath
 - **Michigan State Team:** John Kerr, Robby Richardson, Kurt Waldman, Katherine Groble, and Brendan O'Neill
- Kellogg Biological Station Long-Term Ecological Research (KBS-LTER)
- Ohio Soil and Water Conservation District Offices
- Roy Black, Brian Brandt, and Gary Pennell
- Ohio Farm Bureau
- Corn and soybean producers in Michigan & NW Ohio



Thank You!

MICHIGAN STATE
UNIVERSITY



**RESOLUTION OF THE BOARD OF TRUSTEES
OF MICHIGAN STATE UNIVERSITY
AUTHORIZING THE ISSUANCE AND DELIVERY OF
COMMERCIAL PAPER NOTES, SERIES E, AND
PROVIDING FOR OTHER MATTERS RELATING THERETO**

WHEREAS, the Board of Trustees of Michigan State University (the "Board") is a body corporate created by and existing under the Constitution of the State of Michigan with full constitutional authority over and general supervision of Michigan State University (the "University") and control and direction of all expenditures from the University's funds; and

WHEREAS, the Board has determined that financing capital projects of the University with the proceeds of tax-exempt or taxable debt, or both, will enhance the flexibility of the University with respect to its budget and financial resources, and will permit the allocation of the costs of the capital projects to the periods of the useful lives of the projects being acquired; and

WHEREAS, the University's current high credit ratings not only reflect the financial strength of the University and its ability to repay its debt obligations, but will also permit the University to access public debt markets in the most efficient and economic manner; and

WHEREAS, the Board has determined it is necessary and desirable to provide for the temporary or permanent financing of capital projects of the University, currently under way or to be undertaken, through the issuance of Board of Trustees of Michigan State University Commercial Paper Notes, Series E (Tax-Exempt) (the "Series E Notes") and the continuation of the issuance of the previously authorized Board of Trustees of Michigan State University Commercial Paper Notes, Series B (Taxable) (the "Series B Notes," and collectively with the Series E Notes, the "Notes") in an aggregate principal amount such that the Notes outstanding from time to time shall not exceed \$250,000,000; and

WHEREAS, the Board has determined it is necessary and appropriate to refund all or part of the outstanding notes of the Board's Commercial Paper Notes, Series D (Tax-Exempt) (the "Series D Notes") and all or part of the outstanding Series B Notes (such notes to be refunded to be selected by an Authorized Officer (as hereinafter defined) and being herein called the "Notes to be Refunded"), and that it may be economic and appropriate to refund certain other outstanding debt obligations of the Board (such debt obligations, if any, to be refunded to be selected by an Authorized Officer and being herein called the "Bonds to be Refunded"); and

WHEREAS, the Board has approved certain capital projects to be financed and refinanced in whole or in part through the issuance of the Notes, as set forth on Exhibit A hereto, and may approve additional projects to be so financed (all such projects being herein called the "Projects"); and

WHEREAS, in order to provide for the issuance of the Series E Notes, it will be necessary for the President, the Vice President for Finance and Treasurer and the Director of Investments and Financial Management (each an "Authorized Officer") or any one of them individually, to execute and deliver one or more Commercial Paper Issuance Certificates

(collectively, the "Issuance Certificate"), one or more Commercial Paper Issuing and Paying Agent Agreements (collectively, the "Paying Agent Agreement") with a bank or banks to be selected by an Authorized Officer, one or more Dealer Agreements (each a "Dealer Agreement") with a dealer or dealers (collectively, the "Dealer") to be designated by an Authorized Officer, and, if deemed appropriate by an Authorized Officer, an agreement or agreements relating to a liquidity or credit/liquidity facility; and

WHEREAS, the Series E Notes are to be limited and not general obligations of the Board, payable from and secured by a pledge of General Revenues (as shall be defined in the Issuance Certificate in a manner generally consistent with the definition thereof set forth in the Commercial Paper Issuance Certificate pursuant to which the Series D Notes were issued) and moneys from time to time on deposit in the Note Payment Fund or Funds to be created pursuant to the Issuance Certificate, and may be additionally payable from Available Investments (as shall be defined in the Issuance Certificate); and

WHEREAS, it is necessary for the Board to delegate to each of the Authorized Officers the power to designate certain Authorized Representatives and Authorized Persons (each as shall be defined in the Issuance Certificate or Paying Agent Agreement) to undertake certain actions with respect to the issuance of the Series E Notes; and

WHEREAS, the Series E Notes are to finally mature on or before the date five years after the date of issuance of the first Series E Notes hereunder, and are intended (to the extent not previously retired) to be replaced by permanent General Revenue financing on or prior to such final maturity date; and

WHEREAS, it is necessary to extend the date on which the Series B Notes are to finally mature; and

WHEREAS, in the exercise of its constitutional duties, and in order to prudently control and direct expenditures from the University's funds, the Board determines it is necessary and desirable to authorize the issuance of the Notes to provide funds to finance and refinance all or part of the costs of the Projects, to refund the Notes to be Refunded and the Bonds to be Refunded, if any, and to pay certain costs incurred in connection with the issuance and sale of the Series E Notes and the refunding; and

WHEREAS, in order to be able to market and remarket the Notes, it is necessary for the Board to authorize an Authorized Officer to prepare, execute and deliver, on behalf of the Board, one or more Offering Memoranda (collectively, and as supplemented from time to time, the "Offering Memorandum") to be circulated and used in connection with the marketing, sale and delivery of the Notes, and to take, together with other appropriate officers, agents and representatives of the Board or the University, additional actions necessary to accomplish the sale and delivery of the Notes, the administration of the commercial paper program of which the Notes are a part, and the purposes hereof, all within the limitations set forth herein; and

WHEREAS, the financing and refinancing of the Projects and the refunding of the Notes to be Refunded and the Bonds to be Refunded, if any, will serve proper and appropriate public purposes; and

WHEREAS, the Board has full power under its constitutional authority for supervision of the University, and control and direction of expenditures from the University's funds, to authorize and acquire the Projects, to refund the Notes to be Refunded and the Bonds to be Refunded, if any, to finance and refinance by the issuance of the Notes the costs of the Projects, the costs of the refunding and the costs related to the issuance of the Notes and the refunding, and to pledge the General Revenues of the University for payment of the Series E Notes and to covenant to pay the Series E Notes from Available Investments.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF MICHIGAN STATE UNIVERSITY, AS FOLLOWS:

1. The Board hereby authorizes the issuance, execution and delivery of the Series E Notes of the Board, in multiple issuances on various dates, to be designated BOARD OF TRUSTEES OF MICHIGAN STATE UNIVERSITY COMMERCIAL PAPER NOTES, SERIES E, with additional or alternative series designations, as shall be determined appropriate by an Authorized Officer, in the aggregate principal amount outstanding from time to time as shall be designated by any one of the Authorized Officers, but, together with the Series B Notes, not in excess of \$250,000,000 outstanding from time to time, to be dated as of a date of issuance of each Series E Note, or otherwise as shall be determined by an Authorized Officer, for the purpose of (a) financing and refinancing all or part of the costs of the Projects, (b) refunding all or a portion of the Series B Notes and the Series D Notes, as shall be determined by an Authorized Officer, (c) refunding the Bonds to be Refunded, if any, as shall be determined by an Authorized Officer, and (d) paying all or part of the costs incidental to the issuance of the Series E Notes and the refunding. The Projects as a whole are hereby determined by the Board to constitute a single governmental purpose of the Board. The Series E Notes shall not be subject to redemption prior to maturity. Each Series E Note shall mature not later than 270 days after its date of issuance, determined as shall be provided in the Issuance Certificate and Paying Agent Agreement, and all Series E Notes must mature on or before the date five years after the date of issuance of the first Series E Notes hereunder. Interest on each Series E Note shall be payable on the maturity date thereof, at the rate, not in excess of 10% per annum, determined as shall be provided in the Issuance Certificate and Paying Agent Agreement. The Series E Notes shall be issued in fully registered form in the denominations, shall be subject to transfer and exchange, and shall be executed and authenticated, all as shall be provided in the Issuance Certificate. The Series E Notes shall be sold at par through the Dealer or Dealers selected by an Authorized Officer, as shall be provided in the Dealer Agreement.

Each Series B Note shall mature not later than 270 days after its date of issuance, determined as shall be provided in the Issuance Certificate and Paying Agent Agreement applicable thereto, and all Series B Notes must mature on or before December 31, 2020.

2. The Series E Notes shall be limited and not general obligations of the Board payable from and equally and ratably secured by a lien on General Revenues on a parity basis with the lien securing the Board's outstanding General Revenue bonds, notes and other obligations, now or hereafter outstanding, and by a lien on moneys from time to time on deposit in the Note Payment Fund or Funds to be created pursuant to the Issuance Certificate, as shall be provided therein. The Series E Notes may also be payable from Available Investments, as may be provided in the Issuance Certificate.

In support of its obligation to repay the Notes, the Board may, if deemed appropriate by an Authorized Officer, enter into one or more letters of credit, lines of credit, note purchase agreements or other liquidity or credit/liquidity facilities (collectively, the "Liquidity Facility"). Any reimbursement obligation (including interest) for draws under the Liquidity Facility shall be a limited and not general obligation of the Board, payable from General Revenues, and may be secured by a parity or subordinate pledge of General Revenues. The Authorized Officers are, and any one of them is, authorized to negotiate, execute and deliver, for and on behalf of the Board, such agreement or agreements (collectively, the "Liquidity Agreement") as an Authorized Officer may deem appropriate to acquire the Liquidity Facility and to provide for the repayment of draws thereunder, as provided herein.

No recourse shall be had for the payment of the principal amount of or interest on the Series E Notes, or under any Liquidity Agreement, or any claim based thereon, against the State of Michigan or against any member, officer or agent of the Board or of the University, as individuals, either directly or indirectly or, except as shall be provided in the Issuance Certificate and the Liquidity Agreement, if any, against the Board, nor shall the Series E Notes and interest with respect thereto or the obligations under any Liquidity Agreement become a lien on or be secured by any property, real, personal or mixed of the State of Michigan, the Board or the University, other than the General Revenues and the moneys from time to time on deposit in the Note Payment Fund or Funds to be created by the Issuance Certificate.

3. The right is reserved to issue additional bonds, notes or other obligations payable from General Revenues and secured on a parity or subordinated basis with the Notes and other General Revenue bonds, notes and other obligations by a lien on General Revenues, upon compliance with terms and conditions therefor as shall be set forth in the Issuance Certificate.

4. The Authorized Officers are, and any one of them is, hereby authorized and directed, in the name of the Board and as its corporate act and deed, to negotiate, execute and deliver the Issuance Certificate, the Paying Agent Agreement and one or more Dealer Agreements, consistent with the terms of this Resolution, as the Authorized Officer or Officers executing the same shall approve, which approval shall be conclusively evidenced by the execution of the respective documents. The Authorized Officers are, and any one of them is, hereby further authorized to execute and deliver any amendments to the Issuance Certificate, Paying Agent Agreement and Dealer Agreement entered into in connection with the issuance of the Series B Notes as may be necessary for the refunding of the Notes to be Refunded and the issuance of the Series E Notes, and otherwise to reflect the terms hereof.

5. The Authorized Officers are, and any one of them is, hereby authorized and directed to designate employees or agents of the Board or the University to act as Authorized Representatives with respect to the issuance of Series E Notes, and to designate Authorized Persons, who may be employees or agents of the Board or the University or employees or agents of the Dealer, to take certain actions with respect to the issuance of Series E Notes, all as shall be provided in the Issuance Certificate, the Paying Agent Agreement, or any Dealer Agreement.

6. The President of the University and the Vice President for Finance and Treasurer are, and either one of them is, hereby authorized, empowered and directed, in the name and on behalf of the Board, and as its corporate act and deed, to execute the Series E Notes by manual or facsimile signature and to deliver the Series E Notes to the purchaser in exchange for the purchase price thereof, as shall be provided in the Issuance Certificate and the Paying Agent Agreement. The Series E Notes may be issued in the form of one or more Master Notes, as shall be provided in the Paying Agent Agreement.

7. The Authorized Officers are, and any one of them is, hereby authorized to cause to be prepared and circulated the Offering Memorandum with respect to the Notes, and to update, or cause to be updated, the Offering Memorandum, through supplements or otherwise, as an Authorized Officer shall deem appropriate, or as may be required by law. Any Dealer is authorized to circulate and use, in accordance with applicable law, the Offering Memorandum, as the same may have been updated or supplemented from time to time, in the offering, sale and delivery of the Notes.

8. The Authorized Officers are, and any one of them is, hereby authorized to select the portions, if any, of the Series B Notes and the Series D Notes and of the Board's outstanding bonds referred to in the preambles hereto as the "Notes to be Refunded" and "Bonds to be Refunded," respectively, and to provide for the call for redemption of such bonds, and to take any and all actions necessary and appropriate to provide for the payment when due of all amounts with respect to the Notes to be Refunded and the Bonds to be Refunded from the proceeds of the Series E Notes or other authorized debt obligations of the Board, or from other available funds of the University. All Series D Notes not refunded from the proceeds of the Series E Notes or other authorized debt obligations of the Board must be retired from other available funds of the University within 90 days of the first issuance of any Series E Notes.

9. The President, the Vice President for Finance and Treasurer, the Director of Investments and Financial Management, the Secretary of the Board, the Vice President for Legal Affairs and General Counsel and any Associate or Assistant General Counsel, and all other appropriate officers or representatives of the Board or the University and each one of them are authorized to perform all acts and deeds and to execute and deliver for and on behalf of the Board all instruments and documents required by this Resolution or the documents authorized hereby (including a Letter or Letters of Representations among the Board, The Depository Trust Company and other necessary entities), or necessary, expedient and proper in connection with the issuance, sale and delivery of the Series E Notes and the administration of the financing program represented by the Notes, from time to time, all as contemplated hereby or in connection with subsequent elections, approvals or determinations under the Issuance Certificate

or other documents. Any reference to an officer of the Board or the University herein shall include any interim or acting officer appointed by the Board.

10. All resolutions or parts of resolutions or other proceedings of the Board in conflict herewith are hereby repealed insofar as such conflict exists.

EXHIBIT A

PROJECTS

The Projects, as that term is used in the Resolution to which this Exhibit A is attached, include the following:

Category I

<u>Project Description</u>	Currently Estimated Approximate Cost To Be Funded From Note Proceeds (exclusive of issuance expense) <u>(millions)</u>
A. (Board approved project construction/renovation)	
Akers Hall dining and life safety renovations, remodeling, furnishing and equipping	\$15.2
Bio Engineering Facility	15.1
North Campus Infrastructure Improvements – West Circle Drive - 2014	9.9
B. (Board approved project planning and design)	
North Campus Infrastructure Improvements – West Circle Drive - 2015	7.8

Category II

All projects heretofore or hereafter approved by the Board with an identified total or partial funding source as the proceeds of bonds, the Notes or other debt obligations issued by the Board.

Category III

Miscellaneous building, renovation, remodeling, site improvement, equipment, utility, information system and similar capital projects of the University, each with an estimated cost of \$5,000,000 or less, including but not limited to, roof repairs and replacements; electrical, mechanical, chiller, refrigeration and steam system renovations, repairs, replacements and improvements; heating, cooling and air conditioning system renovations, repairs, replacements and improvements; structural repairs and improvements; utility distribution repairs and improvements; road and sidewalk repairs and improvements; building and building addition construction, renovation, furnishing and equipping; information and computing system acquisitions and improvements (including wiring and cabling); elevator repairs and improvements; miscellaneous landscaping and site work; and miscellaneous equipment acquisitions.

I hereby certify that the attached is a true and complete copy of a resolution adopted by the Board of Trustees of Michigan State University on June 20, 2014, in accordance with applicable law, and that the minutes of the meeting at which the resolution was adopted were kept and will be or have been made available at the Office of the Vice President and Secretary of the Board of Trustees of Michigan State University.

I further certify as follows:

1. Present at the meeting were the following Board members:

2. Absent from the meeting were the following Board members:

3. The following members of the Board voted for the adoption of the Resolution:

4. The following members of the Board voted against adoption of the Resolution:

RESOLUTION DECLARED ADOPTED.

Vice President and Secretary
Board of Trustees of Michigan State University

LICENSE AGREEMENT TERM SHEET

Party: Datashark Corporation

License: Exclusive license on Patent Rights and related technologies in all fields of use

Term: From the effective date of the agreement extending to the expiration of the last to expire of the patents

Technology: MSU invention disclosure Nos. TEC2013-0091 "Gliding Robotic Fish Navigation and Propulsion" and TEC2010-0003 "Gliding Robotic Fish"

U.S. Patent Application No. 61/895116

Exclusive license on copyright in computer source code and know-how related to technology

Technology's Potential Commercial Utilization:

Autonomous underwater vehicle with on-board sensors

Payment Terms: Beginning in the third year of the agreement, royalties on net sales as follows: 5% on products covered by Patent Rights, 10% on services based on Patent Rights, 2.5% on products that incorporate licensed technology not covered by Patent Rights, 5% on services that incorporate licensed technology not covered by Patent Rights; minimum royalty payments as follows: \$20,000 (Year 3), \$35,000 (Year 4), \$50,000 (Year 5 and all following years of agreement); ownership interest in Datashark Corporation consisting of 10% of preferred shares.

The parties may add or remove technologies under the agreement, including improvements generated 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.

Services Provided: By MSU to Datashark: None under contemplated agreement

By Datashark to MSU: None under contemplated agreement

Use of University Facilities/Personnel:

None

Organization Type: Delaware corporation based in East Lansing.

Personnel Interest: Dr. Xiaobo Tan, an Associate Professor in the Department of Electrical and Computer Engineering, and his family own or have options to buy an ownership interest of more than 1% of the company.

AGREEMENT TERM SHEET

Party: Spartan Dawg, LLC

Term: From the effective date of the agreement to November 1, 2014.

Contract: Workshop presentations for Spartan Nutrition & Performance Program, a division of MSU Department of Radiology; fall of 2013 and 2014.

Payment Terms: Fee based on enrollment in program, up to \$4,000

Services Provided: By MSU to Spartan Dawg, LLC: none under contemplated agreement.

By Spartan Dawg, LLC to MSU: instruction and presentation services.

Use of University Facilities/Personnel:

None

Organization Type: Limited liability company based in Lansing

Personnel Interest: Mr. Timothy Bograkos, a Director of Major Market Engagement in the Alumni Association, and his family own or have options to buy an ownership interest of more than 1% of the company. Mr. Bograkos is also a member of Spartan Dawg, LLC.

CONTRACT TERM SHEET

- Party:** Prof. Laura Apol
- Project Description:** Publication of a book, *Requiem, Rwanda*, authored by Prof. Apol.
- Term:** Immediate publication.
- Contractual Terms:** The author shall receive 5% of net revenue from net copies sold of all print editions, up to one thousand units, plus 8% of net revenue from units sold of all print editions thereafter, plus 12% of net revenue from units sold of all electronic ("eBook" or other digital delivery) editions. In addition, the author shall receive ten free copies and additional copies at a 40% discount from the retail price.
- Services Provided:** By MSU to Prof. Laura Apol (as author): Publication of book under standard MSU Press terms and conditions.
- By Prof. Laura Apol (as author) to MSU: Delivery of manuscript for publication under standard MSU Press terms and conditions.
- Use of University Facilities/Personnel:** Not applicable.
- Organization Type:** Prof. Laura Apol is acting as an individual.
- Personnel Interest:** Prof. Laura Apol is the author of the intended publication.

CONTRACT TERM SHEET

Party: Prof. Rita Kiki Edozie

Project Description: Publication of a book, *The Legacy Scholarship of Malcolm X, the Michigander: Contemporary Themes from a Black Studies Academic Community*, co-edited by Prof. Rita Kiki Edozie.

Term: Immediate publication.

Contractual Terms: Each co-editor will receive 2% of net revenue from copies sold of all editions, plus three free copies each and additional copies at a 40% discount from the retail price.

Services Provided: By MSU to Prof. Rita Kiki Edozie (as co-editor): Publication of book under standard MSU Press terms and conditions.

By Prof. Rita Kiki Edozie (as co-author) to MSU: Delivery of manuscript for publication under standard MSU Press terms and conditions.

Use of University Facilities/Personnel: Not applicable.

Organization Type: Prof. Rita Kiki Edozie is acting as an individual.

Personnel Interest: Prof. Rita Kiki Edozie is a co-editor of the intended publication.

CONTRACT TERM SHEET

Party: Prof. Rita Kiki Edozie

Project Description: Publication of a book, *The African Union's Africa: New Pan African Initiatives in Global Governance*, authored by Prof. Rita Kiki Edozie.

Term: Immediate publication.

Contractual Terms: The author and Mr. Keith Gottschalk of Claremont, South Africa, shall each receive 2.5% of net revenue from copies sold of all editions. In addition, the author shall receive ten free copies and additional copies at a 40% discount from the retail price, plus 50% of all net revenues from the exploitation or disposition of secondary or subsidiary rights (such as digests, condensations, translations, reprints, or the sale of rights).

Services Provided: By MSU to Prof. Rita Kiki Edozie (as author): Publication of book under standard MSU Press terms and conditions.

By Prof. Rita Kiki Edozie (as author) to MSU: Delivery of manuscript for publication under standard MSU Press terms and conditions.

Use of University Facilities/Personnel: Not applicable.

Organization Type: Prof. Rita Kiki Edozie is acting as an individual.

Personnel Interest: Prof. Rita Kiki Edozie is the author of the intended publication.

CONTRACT TERM SHEET

Party: Prof. Robert Richardson

Project Description: Publication of a book, *Building a Green Economy*, edited by Prof. Richardson

Term: Immediate publication.

Contractual Terms: The editor shall receive five free copies and additional copies at a 40% discount from the retail price. No royalty under contemplated agreement.

Services Provided: By MSU to Prof. Robert Richardson (as editor): Publication of book under standard MSU Press terms and conditions.

By Prof. Robert Richardson (as editor) to MSU: Delivery of manuscript for publication under standard MSU Press terms and conditions.

Use of University Facilities/Personnel: Not applicable.

Organization Type: Prof. Robert Richardson is acting as an individual.

Personnel Interest: Prof. Robert Richardson is the editor of the intended publication.

CONTRACT TERM SHEET

Party: Prof. Anita Skeen

Project Description: Publication of a book, *The Unauthorized Audobon*, co-authored by Prof. Anita Skeen and Prof. Emeritus Laura B. DeLind.

Term: Immediate publication.

Contractual Terms: Each co-author will receive a half share of royalties, comprising 5% of net revenue from copies sold of all editions, plus eight free copies each and additional copies at a 40% discount from the retail price.

Services Provided: By MSU to Prof. Skeen (as co-author): Publication of book under standard MSU Press terms and conditions.

By Prof. Skeen (as co-author) to MSU: Delivery of manuscript for publication under standard MSU Press terms and conditions.

Use of University Facilities/Personnel: Not applicable.

Organization Type: Prof. Skeen is acting as an individual.

Personnel Interest: Prof. Anita Skeen is a co-author of the intended publication.