

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

February 16, 2018

President Engler called the meeting of the Board of Trustees to order at 9:00 a.m. in the Board Room, followed by a moment of silence for President Emeritus Cecil Mackey and Trustee Emerita Faylene Owen.

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

University officers present: President Engler, Provost and Executive Vice President Youatt, Executive Vice President Udpa, Vice President and Secretary Beekman, Vice President and General Counsel Noto, Vice Presidents Bertram, Gore, Groves, Haas, Hsu, Maybank, and Swain, and Senior Advisor and Director Granberry Russell. Faculty liaisons present: Laura McCabe, Marci Metchen, Debra Moriarty, Tom Tomlinson, and Net Watts. Student liaisons present: Ashley Fuente, Malik Hall, Lorenzo Santavicca, and Lauren Bernhardt

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

1. On a motion by Trustee Breslin, supported by Trustee Mosallam, the **BOARD VOTED to approve** the agenda.
2. On a motion by Trustee Lyons, supported by Trustee Breslin, the **BOARD VOTED to approve** the minutes of the December 16, 2017 Board of Trustees Meeting and the January 11, 2018 Board of Trustees meeting.
3. President's Report

A. Cecil Mackey Resolution

Trustee Breslin presented the Cecil Mackey Resolution. (Appendix A)

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

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

B. Health Care Presentation

President Engler introduced Dr. Norm Beauchamp, Associate Provost of Health Affairs, for a presentation on healthcare.

Dr. Beauchamp introduced Dr. Randy Rasch, Dean of the College of Nursing, Dr. Andy Amalfitano, Dean of the College of Osteopathic Medicine, and Dr. Tony Avellino, Chief Medical Officer.

Dr. Beauchamp then observed a moment of silence for the survivors of abuse, noting that they have driven the pace for change at MSU. Dr. Beauchamp then stated that his presentation would be to highlight the transformations at MSU.

Dr. Rasch said that there is an opportunity for nurses to be part of the change occurring on campus by providing more oversight with doctors and patients.

Dr. Amalfitano stated the College of Osteopathic Medicine's goal is to use factual knowledge to give patients the best care possible. Dr. Amalfitano also professed his pride in being able to lead the college and stated that the team would address the concerns going forward.

Dr. Avellino said that he was confident that MSU would make the necessary changes to create a transparent and accountable structure so that all MSU students, faculty, and staff can obtain the greatest quality healthcare. As a pediatric neurosurgeon, and former NCAA athlete, he noted his passion for caring for young people, athletes, and their families. Dr. Avellino said that he and his team would develop quality, safe health care and wellness for students, athletes, faculty, and staff while defining how to improve clinical outcomes, research, and education. He noted that he is grateful for the opportunity to serve MSU.

The Medical team turned to the Trustees for questions.

Trustee Breslin asked how the new structure would provide safety to individuals who come to MSU medical facilities as well as the community at large.

Dr. Beauchamp stated that the best way to provide safety is to make sure that everyone is engaged, from the medical assistant to the

physician, to the technologist, to the nurse, to the chaperone, to the patient, to the family. He noted that bringing together all parts of the medical team and building a medical community where everyone involved can speak up if they have concerns, or if they think something can be improved, will allow the whole team to work together and systematize changes quickly and more effectively than any other organization in the nation.

Trustee Breslin asked if the Health Team would establish lines of communication to allow complaints and problems to be identified without anyone at any level of organization being afraid.

Dr. Beauchamp explained that the Health Team was prioritizing safety, standardization of a chaperone policy, and informing the public of numbers to call if there are issues. He also noted that the Health Team was educating the public about existing resources, and a new website, which allows people to reach out anonymously to ensure that concerns are addressed.

Trustee Byrum asked the Health Team leaders what could be expected regarding student mental health.

Dr. Rasch stated that student mental health falls into a broader category of mental health within the country. He suggested that MSU examine the issues and current resources and broaden the capacity for possible providers. Dr. Rasch mentioned that MSU needs to think of the range of providers, including social workers and psychologists. He reiterated that mental health is a large issue and MSU must get students involved and engaged in the efforts going forward. Dr. Rasch added that exposing students to mental health awareness would lead to improvements in student mental health.

Dr. Avellino stated that stigmas surrounding mental health need to be reduced while increasing awareness so that people will seek out help when they need it. Dr. Avellino also stated that a structured chain of command allows people to come forward.

Trustee Mosallam asked if there was a plan for input from faculty or those currently providing delivery models to improve current methods. He also asked if there were enough counselors and psychiatrists moving forward.

Dr. Beauchamp stated that engaging both a broad audience and the individuals providing care would allow solutions to be found faster.

He noted that MSU has collaborated with seven communities across the state, which will allow MSU to transform healthcare across Michigan while finding the best practices to bring back to campus.

Trustee Mosallam asked if there were any plans to engage students, survivors, and patients.

Dr. Beauchamp stated that he and his colleagues would focus on having listening groups with survivors, students, and patients.

President Engler asked if doctors from MSU's programs primarily stay and work in Michigan.

Dr. Amalfitano stated that approximately 80 percent of graduates from the medical colleges stay in the state, noting that no other school in Michigan has a rate that high. Dr. Amalfitano also spoke about previous town hall sessions with his students where they voiced their concerns about lost trust and a lack of transparency. Dr. Amalfitano stated that in response, the College of Osteopathic Medicine created a path forward task force as well as support groups.

President Engler raised questions regarding stem cell research and directing money into cures while taking advantage of the partnerships in place.

Dr. Amalfitano stated that he is working to unite science departments on campus with clinicians. He noted the Clinical and Translational Sciences institute with the purpose of streamlining and breaking down barriers. Dr. Amalfitano said that working with McLaren and Sparrow has given MSU access to some of the greatest technology available and is broadening avenues to bring these all together, which will improve research further.

President Engler thanked the deans for their segment on healthcare and moved forward with the meeting.

#### C. FRIB Update

President Engler introduced Dr. Thomas Glasmacher, Director of the FRIB Laboratory.

Dr. Glasmacher noted that civil construction has been completed while the technical construction is ongoing and that the FRIB will be

complete in 2021. Dr. Glasmacher stated that the purpose of the FRIB is to enable scientists to make discoveries. The FRIB is defined as a service provider, the users of which will be scientists. He stated that in order to use FRIB, scientists would submit proposals for evaluation and approval. Dr. Glasmacher added that these teams of scientists will come from 116 universities within the United States as well as internationally.

Dr. Glasmacher said that because MSU is an educational institution rather than a national lab, there exists an opportunity to address workforce shortages in the field. He noted that last year MSU launched an accelerator science technology engineering traineeship program. The knowledge of building cryogenic facilities is being transferred to MSU students.

Dr. Glasmacher stated that the environmental stewardship requirements for the FRIB are well defined by many external organizations. An external audit is conducted every year, but more importantly, internal audits are also conducted. He noted that there is also an external advisory committee. Dr. Glasmacher said that funds for the FRIB project have been utilized using best value procurement guidelines. Under these guidelines, two thirds of the parts and labor were sourced within Michigan and 93 percent was sourced within the United States.

Dr. Glasmacher thanked the Federal Government for its support. MSU has received \$1.1 billion of federal support through the years. The National Science Foundation has supported MSU for 50 years, and more recently the Department of Energy has supported the FRIB project.

D. Grand Rapids Property

Provost Youatt asked Chuck Reid, Director of Land Management, to discuss properties in Grand Rapids, Michigan.

Mr. Reid discussed current and potential properties in Grand Rapids. He noted that MSU sold land to the City of Grand Rapids for a municipal project in exchange for the ability to purchase a different plot of land adjacent to MSU's facilities in Grand Rapids.

4. There was no Public Participation on Issues Germane to the Agenda.
5. Gift, Grant and Contract Report

Vice President Hsu presented the Gifts, Grants, and Contracts Report for the period of November 18, 2017, through January 18, 2018. The report is a compilation of 402 Gifts, Grants and Contracts, plus 87 Consignment/Non-Cash Gifts, with a total value of \$100,559,083.

Trustee Foster **moved to approve** the report, supported by Trustee Byrum.

Vice President Hsu introduced Dr. Kristen Parent, assistant professor in the Department of Biochemistry, who presented to the Board on the topic of virus entry mechanisms. (Appendix B)

6. Personnel Actions

Provost Youatt presented the following personnel actions:

Dantonio, Mark, AN - Head Coach – Football, Intercollegiate Athletics, Subject to Contract, effective January 15, 2023 to January 14, 2024.

Amalfitano, Andrea, AN – Clinical and Translational Sciences Director, adding title of Interim Dean, College of Osteopathic Medicine, with a change in salary to \$325,000, effective February 16, 2018.

Beekman, William, AN—Vice President and Secretary of the Board of Trustees, adding title of Interim Athletic Director, Intercollegiate Athletics, with a change in salary to \$400,000, effective February 5, 2018.

Viventi, Carol, AN—for the creation of, and appointment to, the position of Vice President and Special Counsel to the President, Office of the President, \$250,000, effective February 5, 2018.

Trustee Mosallam **moved to approve** the recommendations, with support from Trustee Foster.

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

7. Consent Agenda

To expedite the business of the Board and to focus energies on items of greatest importance, the Board will adopt a consent agenda.

Finance Committee items 1, 2, 5, 6, 7, 8, and 11 and Policy Committee items 2 and 3 are included within the consent agenda.

The following recommendations were in the consent agenda:

- A. Amendment to Fund Functioning as an Endowment - Mary Louise Gephart Donnell Scholarship/Enrichment Fund

The Trustee Finance Committee recommends to the Board of Trustees an amendment to the purpose and administration of a fund functioning as an endowment in the former Department of Human Environment and Design.

- B. Fund Functioning as an Endowment - Charles Burkholder Scholarship Fund

The Trustee Finance Committee recommends that the Board of Trustees establish a fund functioning as an endowment to provide scholarships to undergraduate students in the College of Agriculture and Natural Resources.

- C. Authorization to Plan  
Business College Complex - Eppley Center - Capital Renewal

The Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to plan for capital renewal infrastructure improvements for the Eppley Center.

- D. Project Approval - Authorization to Proceed  
Water Distribution - Campus Water System Improvements

The Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to proceed with improvements to the campus water system.

- E. Project Approval - Authorization to Proceed  
Dairy Cattle Research Complex - Electrical Distribution  
(17-18 capital renewal)

The Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to proceed with improvements to the Dairy Cattle Research Complex electrical system.

- F. Project Approval - Authorization to Proceed Biochemistry - Replace Windows (16-17 major maintenance)

The Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to proceed with window replacements in the Biochemistry Building.

G. Bid and Contract Award—Communication Arts and Sciences - Replace Roofs (*16-17 major maintenance*)

The Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to award a contract to Barnar Restoration for replacement of deteriorated roofing at the Communication Arts and Sciences Building.

H. Approval of Contract Terms

It was recommended that the Board of Trustees approve a contract between Michigan State University and *EeroQ Corporation*, a company in which MSU faculty member Johannes Pollanen holds a financial interest. (Appendix C)

It was recommended that the Board of Trustees approve a contract between Michigan State University and *MagPlasma, Inc.*, a company in which MSU employees Dr. Thomas Schuelke, Dr. Qi Hua Fan, and Mr. Martin E. Toomajian hold a financial interest. (Appendix D)

It was recommended that the Board of Trustees approve a contract between Michigan State University and *OmiDx, Inc.*, a company in which MSU employees Dr. Timothy Zacharewski, Mr. Rance Nault, and Dr. Dirk Colbry, hold a financial interest. (Appendix E)

I. Notice of Intent to Negotiate a Contract

Pursuant to State law, the Chair of the Policy Committee is requested to give public notice of the University's intent to negotiate contracts with *AccurDx America, Inc.*, a Michigan corporation. Dr. Kefei Yu, Associate Professor in the Department of Microbiology & Molecular Genetics, and members of his family, have, or have options to buy, an interest in the company.

Pursuant to State law, the Chair of the Policy Committee is requested to give public notice of the University's intent to negotiate contracts with *Bio-Electrica*, a Michigan corporation. Dr. Nathan Good, Research Associate in the Department of Microbiology & Molecular Genetics, and members of his family, have, or have options to buy, an interest in the company.



Pursuant to State law, the Chair of the Policy Committee is requested to give public notice of the University's intent to negotiate contracts with *IASO Therapeutics*, a Michigan corporation. Dr. Xuefei Huang, Professor in the Department of Chemistry, and Dr. Zhu Li, a visiting scholar in the Department of Chemistry, and members of their families, have, or have options to buy, an interest in the company.

President Engler **moved to approve** the Consent Agenda, with support from Trustee Byrum.

**THE BOARD VOTED to approve** the Consent Agenda.

8. Finance Committee

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

A. Sale of 533 Monroe Avenue NW and 601 Monroe Avenue NW in Grand Rapids, Michigan

The Trustee Finance Committee recommends that the Board of Trustees authorize the sale of approximately 1.46 total acres of property on Monroe Avenue NW in Grand Rapids, Michigan.

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby authorizes the Administration to sell 533 Monroe Avenue NW (.59 acres) and 601 Monroe Avenue NW (.87 acres), in Grand Rapids, Michigan, to the City of Grand Rapids for \$3,810,000 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 Byrum.

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

B. Project Approval—Authorization to Proceed—Facility for Rare Isotope Beams—High Rigidity Spectrometer and Isotope Harvesting Experimental Vault

The Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to proceed with installation of

a vault at the Facility for Rare Isotope Beams (FRIB) to add additional research capacity.

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby authorizes the Administration to proceed with the project entitled "Facility for Rare Isotope Beams—High Rigidity Spectrometer and Isotope Harvesting Experimental Vault," with a project budget of \$22,500,000.

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

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

- C. Project Approval - Authorization to Proceed  
Facility for Rare Isotope Beams - Cryogenic Assembly Building

It was recommended that the Board of Trustees authorize the Administration to proceed with construction of a building dedicated to cryogenic experiments within the Facility for Rare Isotope Beams.

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby authorizes the Administration to proceed with the project entitled  
"Facility for Rare Isotope Beams - Cryogenic Assembly Building,"  
with a project budget of \$12,400,000.

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

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

- D. Project Approval—Authorization to Proceed—Intramural Recreative Sports West—Turf Area Renovations and Capital Renewal (*healthy campus initiative*) and Demonstration Hall—Multi-Use Court Renovations (*healthy campus initiative*)

The Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to proceed with infrastructure improvements to the turf arena at the Intramural Recreative Sports West building.

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

project entitled "Intramural Recreative Sports West-Turf Arena Renovations and Capital Renewal," with a project budget of \$4,300,000, which was part of the \$35 million Health Campus Initiative for which the Board gave approval to plan on December 18, 2015.

The Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to proceed with renovations to the multi-use court at Demonstration Hall.

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby authorizes the Administration to proceed with the project entitled "Demonstration Hall—Multi-Use Court Renovations," with a project budget of \$2,150,000, which was part of the \$35 million Healthy Campus Initiative for which the Board gave approval to plan on December 18, 2015.

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

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

9. Policy Committee

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

A. Approval of Student Rights and Responsibilities Document

It was recommended that the Board of Trustees approve revisions to the document governing student rights and responsibilities at MSU, including revisions to Article 5 (Adjudication of Non-Academic Cases), Article 10 (Office of the Ombudsperson), and Article 11 (Definitions and Acronyms).

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves Article 5, Article 10, and Article 11 of the Student Rights and Responsibilities document as presented in Attachment A; and be it further

RESOLVED, that the Board of Trustees authorizes the Provost to make any conforming changes to other University policies that are necessary as a result of this Board action.

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

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

Trustee Byrum tabled the Change of Unit Name—College of Human Medicine resolution.

10. Audit Committee

A. Reappointment of University's External Auditors for 2017-18

The Trustee Audit Committee recommends that the Board of Trustees reappoint Plante & Moran as external auditors for the 2017-18 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 2017-18 fiscal year at a fee of \$366,600 in accordance with the University's policy on the rotation of auditors.

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

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

B. Revised Auditor Rotation Policy

The Trustee Audit Committee recommends that the Board of Trustees amend its Auditor Rotation Policy to permit an audit firm to be eligible to compete for the University's financial audit work at the completion of its second six-year cycle as external auditor.

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves the amendments to its Auditor Rotation Policy, Board Policy 01-01-04. (Appendix F)

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

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

The Trustee Audit Committee received an overview of the compliance of research programs, particularly animal and human

subjects from Assistant Vice President for Regulatory Affairs J.R. Haywood.

#### 11. Trustee Comments

Trustee Breslin stated that these are somber times for Michigan State University and that the no confidence votes that took place were humbling. He stated that he met with the student liaisons and is committed to working with faculty moving forward. He committed to working to restore the confidence of the faculty. Trustee Breslin stated that he plans to focus on the survivors and make MSU a model in safety, inclusion, and protection. He noted that the most important decision a university governing board can make is the selection of a president. Trustee Breslin reiterated his commitment to working with students, faculty, and staff at MSU to ensure the selection of a permanent president is made in a prudent and proper manner. Trustee Breslin discussed the FRIB and how it benefits MSU. He noted that the FRIB would not be at MSU without the leadership and organizational skills of Lou Anna Simon.

Trustee Ferguson stated that he feels that MSU is moving in the right direction under President Engler's leadership.

Trustee Foster stated that the Board had its first joint meeting between faculty and student liaison groups. She believes the meeting was productive and she looks forward to collaborating with the groups. Trustee Foster said that she is committed to making the presidential search broad reaching and productive. She noted that the Data Center project is ahead of schedule and this will allow the expeditious integration of information technology into one cohesive, efficient unit.

Trustee Perles thanked President Engler for returning to MSU to serve.

Trustee Byrum said that she understands the anger and frustration among students, faculty, and staff whose trust in MSU has been shaken. She stated that for too long, MSU has failed to be transparent, accountable, and compassionate and MSU needs to change that. Trustee Byrum said that she is committed to doing her part to increase transparency, promote accountability, and improve communications so this tragic situation never happens again.

Trustee Byrum paid tribute to the passing of Trustee Emerita Faylene Owen. She stated that Faylene Owen was a Board of Trustees member for eight years and that Faylene was a friend. She noted that Faylene cared very deeply about the University, and especially cared about and spent countless hours with students.

Trustee Lyons said that the current situation has highlighted some areas of the University that need to be improved going forward. He stated that much of the angst on campus is due to the speed at which the Board selected the interim president. Trustee Lyons stated that the Board made the decision that it felt would be best for MSU. He noted that the search for a permanent president would include input from many groups. Trustee Lyons thanked President Engler for his work.

Trustee Mosallam thanked President Engler, commending him for his swift action since arriving on campus. He stated that since President Engler arrived he moved to terminate personnel associated with Larry Nassar, has suspended another physician, has hired an investigative firm to handle the backlog of cases of sexual misconduct, has reorganized MSU's healthcare and medical assets to better ensure safety, quality, access, and transparency, and he has fully cooperated with all investigations. Trustee Mosallam stated he is pleased to see all of the actions, and emphasized that he wants the MSU community to know that this is just the beginning of all the actions that are taking place to fix campus.

Trustee Mosallam stated that the courageous survivors, students, faculty, staff, and alumni have demanded action and that the Board was taking action. Trustee Mosallam stated he is listening. He noted that he hosted a Town Hall meeting and that the response was positive. He applauded those who spoke up, particularly survivors of sexual assault, and especially Kat Ebert. Trustee Mosallam expressed his shock and sadness at the fear and anxiety that exists on campus because of sexual misconduct. He stated that these problems must be addressed.

Trustee Mosallam said the Board is not notified of Title IX reports or incidences of sexual assault on campus. He stated this policy must be reviewed and changed immediately as it is unacceptable for victims to live in anxiety and fear that their voices will not be heard. Trustee Mosallam stated that it is unacceptable for cases of sexual misconduct to go unreported because people do not have faith in

MSU. He noted that MSU has an anonymous hotline and electronic resource to report cases of sexual misconduct. Trustee Mosallam also stated that he has met with numerous student groups, campus partners, faculty, staff, and alumni. He noted that in all of his meetings that he asks groups for their recommendations on how to make campus safer. Trustee Mosallam shared that many students were told that they were not allowed to speak to Trustees, which he affirmed was false.

Trustee Mosallam stated that he is committed to changing the culture of MSU. He said that he recently discussed resource and funding requests with Provost Youatt and he thanked her for her attention to these matters. He stated that the Board must work to make the University more transparent and the Trustees more accessible. He said that they would remove the impediments that are preventing sexual misconduct from being reported on campus. Trustee Mosallam committed to working with President Engler to improve campus climate.

Trustee Kelly stated his commitment to the faculty and staff. He agreed with fellow trustees that they had to move quickly to take action on the Interim President, but that will not be the case with the search for the permanent president. Trustee Kelly stated that he wants others involved in the search.

President Engler stated that after the remainder of the Public session of the meeting, there would be an Executive session with the Trustees. He thanked the Board for giving him the opportunity to serve, and thanked Provost Youatt for all of her additional work. President Engler stated that because of the Nassar investigation, MSU is part of the national conversation on sexual assault. President Engler mentioned that he is pleased that six additional investigators have been added to work on the backlog of sexual assault cases, adding that he is aware the University community is anxious to have input.

President Engler said that while it is important to address the Nassar issue, everyone must also recognize all of the good doctors and other health professionals that are utilizing their talents on campus. He stated there is a lot of work to do, but that MSU can take this opportunity to be a national leader in the prevention of and response to sexual misconduct. President Engler thanked Bill Beekman for all of the additional work he has performed.

## 12. Liaison Reports

- A. Ashley Fuente, student liaison, stated that graduate and professional students have no faith in the Board. She said that she hopes that the Board considers integrity and what it means as an individual Board member as well as what it means as a whole on the Board. She stated that words matter but actions matter more.
- B. Lorenzo Santavicca, student liaison, stated that it is imperative that the Trustees listen before they speak and act. He stated that everyone is at a different place concerning moving on. He asked that the Board be intentional with remarks. Mr. Santavicca stated that the undergraduate students rely on the Board for information and communication and have opinions of what needs to happen.
- C. Malik Hall, student liaison, read a statement from the Residence Halls Association.

The Residence Halls Association, whose general assembly represents the students living in the residence halls, CORES and COPs, and groups of various other communities and organizations, also passed a vote of no confidence. From the representatives that signed it, they state there is a lack of transparency, disregard, and disinterest in student input and feeling that the University does not care about them as reasons behind this decision. The decision, meaning the decision of the interim President.

- D. Laura McCabe, faculty liaison, stated that the Faculty Council represents the faculty, not themselves. She stated that the faculty echoes the student comments. Dr. McCabe stated that the Faculty Council would take the comments from the Board meeting to the Senate Council next week and discuss next steps.

## 13. Public Participation on Issues Not Germane to the Agenda

- A. Priorities of Education Leadership

Harold Ford, Michigan resident, stated that he is a taxpayer, public educator, and WKAR donor. He explained in his family and in his career as a public educator, his number one priority has always been the safety of children. Mr. Ford stated that MSU's priority must be child safety, in addition to bearing some responsibility for Larry Nassar. Mr. Ford urged Trustee Ferguson to self-reflect on his



earlier comments and to do what is right for the University, the taxpayers that fund it, and the people that it serves and resign.

B. Handling of Resignations, Appointments, Community Involvement

Siaira Milroy, MSU student, said that the students, faculty, and community have no confidence in the Board of Trustees. Ms. Milroy stated that MSU has failed by allowing a child predator to work on its campus for 15 years. Ms. Milroy said that there is a great deal of reform that needs to be collaborated on to ensure something like this never happens again. She stated that the Board and administration have not collaborated with students, faculty, and as a community. Ms. Milroy noted that the concerns of survivors have been ignored, as well as the concerns of others, in critical decisions moving forward. Ms. Milroy stated the need for students and faculty to be included in important decisions and to support survivors.

C. MSU's Broken Judicial System

Dr. Selman Akbulut, MSU mathematics professor, urged the Board to look at the roots of this problem and suggested that there is a broken grievance policy at the University regarding handling misconduct. He stated that he has faced harassment issues on a faculty and graduate student level and that the system is flawed. Dr. Akbulut stated that he has suffered penalties such as a class reduction, salary reduction, and discrimination from speaking out about certain issues. He stated that in his experiences with the grievance process, he felt there was a lack of investigative skill.

D. Discrimination Cases

Eylem Yildiz, MSU student, stated she is a fifth year doctoral student in the Department of Mathematics. She stated that the chair and graduate chair of the Mathematics Department torture Middle Eastern graduate students and faculty by abusing power including giving unnecessary deadlines, impossible assignments, and using rude and insulting language. Ms. Yildiz stated that some students left the department as soon as they arrived because of the hostile environment. She stated that when students filed complaints with the Office of Institutional Equity they faced retaliation. She said that some were terminated due to being academically insufficient and some were threatened with termination of their contract.

E. Shared Governance

Sara Bijani, MSU graduate student, stated she is a doctoral candidate in the Department of History, and president of the Graduate Employees Union. She stated that the University has a \$3 billion dollar endowment, but earlier this week claimed to have only enough money to hire one additional sexual assault counselor. Ms. Bijani said that the same day, MSU hired a law firm for \$50,000 per month to represent it in state and national investigations. She stated that the system currently in place is not working because survivors do not trust MSU. She called for a mechanism in place to remove abusers and for an investigation on Dr. Denise Maybank, stating that Dr. Maybank has directly interfered on numerous sexual assault investigations, and brought back convicted rapists to campus even after their expulsion. Ms. Bijani stated that counseling services are understaffed, and the sexual assault program is underfunded. She stated that supporting survivors needs to be a priority at MSU, which begins with funding the resources survivors need.

#### F. Graduate Student Exploitation

Maximillian Hughes, MSU graduate student, stated that he is speaking on behalf of a student who wishes to remain anonymous. He stated that the student is enrolled in the Applied Behavioral Analysis graduate program at MSU. Mr. Hughes stated that graduate students are being exploited, overworked, and that policy and course descriptions are ignored, and that these issues are not being appropriately addressed within the program. He said that in the ABA program practicum courses students are being overworked and that the 29 hours maximum work week policy for students is being violated. When calculated, students are expected to work about 13 hours for one credit, which violates university policy.

#### G. Graduate Student Exploitation

Cathleen Fry, MSU graduate student, continued to speak on behalf of the same student. She stated that when the student contacted the Graduate School, it contacted the ABA and simply accepted an explanation. The Graduate School referred that student to the Ombudsman. It was recommended that the parties communicate to fix the issues that reside within the program. Ms. Fry said that a survey should be sent out asking students if they understood the work that was expected of them. Ms. Fry states that graduate students should not have to fear retaliation for bringing up issues.

H. Anti-Harassment

Sandra Beals, MSU graduate student, stated that she would complete the statement her colleague started regarding problems in the mathematics department. She said that after OIE found Dr. Wolfson guilty of violating the antidiscrimination policy, there was no disciplinary action taken. Ms. Beals stated that Dr. Wolfson remained in a position of power. She said that this is a result of higher administration's lack of transparency and accountability.

I. Hiring of DLA Piper

Justin Johnson, MSU Alum, stated that he is running for the MSU Board of Trustees. He said that the Trustees have not followed through on the responsibilities that they volunteered to fulfill. Mr. Johnson stated the hiring of Governor Blanchard's law firm with no evidence of consultation or approval from the Board is unacceptable. He stated this kind of weak oversight is what allowed William Strampel and Katherine Klages to overrule university policy and possibly break state and federal laws. Mr. Johnson stated that the trustees have not shown commitment to being public servants of the university.

J. University Culture and Transparency

Samuel Richard Klahn, MSU student, thanked Trustee Mosallam for attending the ASMSU meetings. Mr. Klahn said that Reclaim MSU is a coalition of students, faculty, and staff demanding transparency, accountability, and equitable power resource distribution from the administration. He said that Reclaim MSU condemns all instances of discrimination, violence, and harassment on campus, and in our community, as well as the current administration's shameful neglect towards these issues. He said that the group stands in solidarity with all survivors of sexual misconduct, and envisions a future of substantiated justice by all those affected by the campus climate. Mr. Klahn said that Reclaim MSU stands behind the demands of the students, faculty, and staff of MSU. He stated that his fondest memories growing up often included MSU and that MSU is not just the place that will give him his diploma, but has shaped his identity the last two decades. He stated he is heartbroken, furious, and ashamed of MSU, not only

due to its inaction in the preceding decades, but its cowardliness in recent months. Mr. Klahn advocated that the Board ask for what is best for survivors, and what is best for MSU.

14. Request to Adjourn

On a motion by Trustee Ferguson, supported by Trustee Mosallam, **THE BOARD VOTED to adjourn** at 12:10 p.m.

Respectfully submitted,



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

RESOLUTION  
HONORING MAURICE CECIL MACKEY, JR.  
Michigan State University  
February 16, 2018

The Michigan State University Board of Trustees today expresses its condolences to Clare Mackey and the rest of the family of Maurice Cecil Mackey, Jr., who ably served MSU as its 16th president from 1979 to 1985. Former President Mackey died February 8, 2018 at the age of 89.

He arrived at a troubled time for state finances and guided MSU through some of its most difficult budget years. His professional skills, combined with his personal civility and courage, left a lasting impression on those who knew and worked with him. Colleagues remember him as a soft-spoken and principled person whose management practices reflected his belief in the importance of diversity.

Despite budgetary challenges, Mackey fostered important growth during his six years as MSU president. He initiated the establishment of endowed chairs, increased private financial support, and opened the Wharton Center for Performing Arts, the National Superconducting Cyclotron Laboratory, and other academic and athletic facilities.

Mackey was born January 23, 1929, in Montgomery, Alabama. He earned bachelor's and master's degrees in economics from the University of Alabama, and a doctorate in economics from the University of Illinois. Following military service, he taught law at the University of Alabama, where he earned his law degree, and was admitted to the Alabama State Bar.

He became assistant counsel for the U.S. Senate Subcommittee on Antitrust and Monopoly in 1962, followed by directorship of the Office of Policy Development for the Federal Aviation Agency. In 1965, Mackey became the director of the Office of Transportation Policy for the U.S. Department of Commerce and then assistant secretary for policy development for the U.S. Department of Transportation.

Mackey next served as president of the University of South Florida and then Texas Tech University. He was inaugurated as president of MSU on August 3, 1979 and served until June 30, 1985. He and his wife, Clare, remained in East Lansing as he taught courses in economics.

To reiterate the board's statement upon President Mackey's resignation, his ability to make difficult decisions "allowed us to sustain the academic excellence for which MSU is internationally known." For his extraordinary leadership, resolute commitment, and tireless efforts on behalf of this university, the MSU Board of Trustees offers its enduring gratitude to M. Cecil Mackey.

# Understanding virus entry mechanisms and the impact of the recent cryo-EM resolution revolution

Kristin Parent  
@Phage4Lyfe



# Party facts

How many viruses are there in the biosphere?

- A) Thousands ( $10^4$ )
- B) Millions ( $10^6$ )
- C) Trillions ( $10^{12}$ )
- D) Way more than that ( $>10^{31}$ )

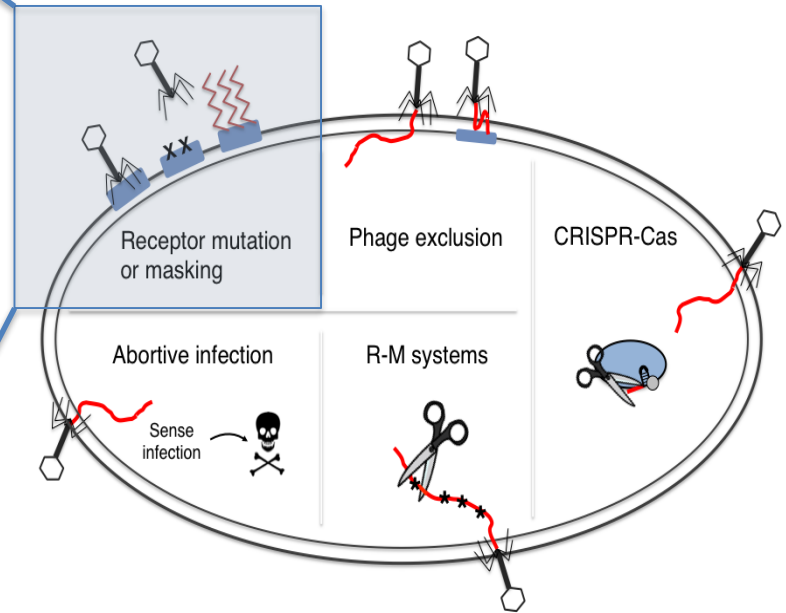
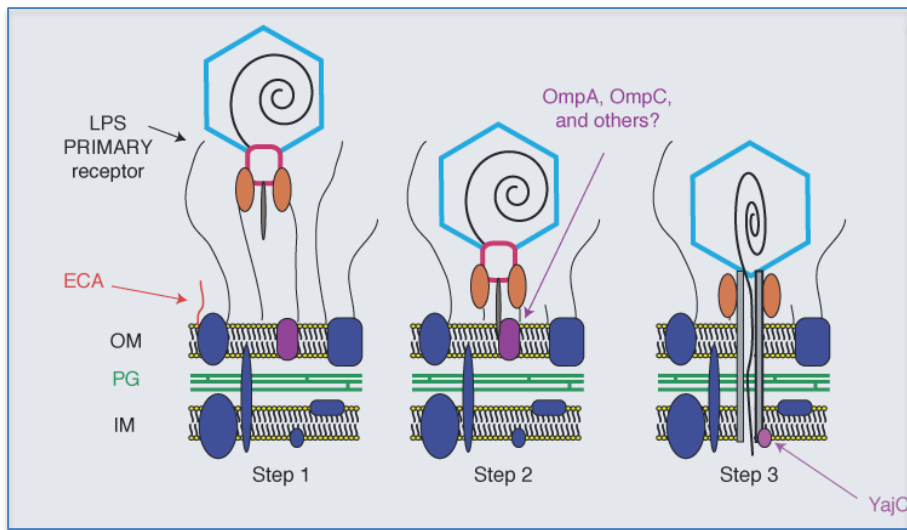
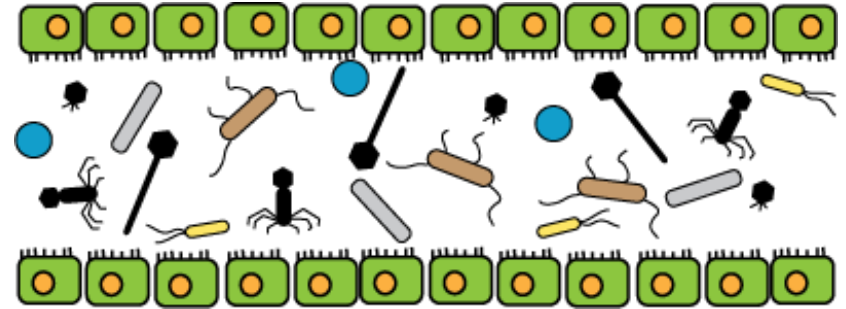


# The “Virosphere”


$$10^{31} = 10,000,000,000,000,000,000,000,000,000,000$$

# Goals of the Parent Lab

- Characterize how viruses recognize and infect cells
- Understand how this changes as viruses evolve



# Structure relates to function



Structure is critical in biology

How do we study the structure of things  
too small to see?



# 2017 Nobel Prize in Chemistry



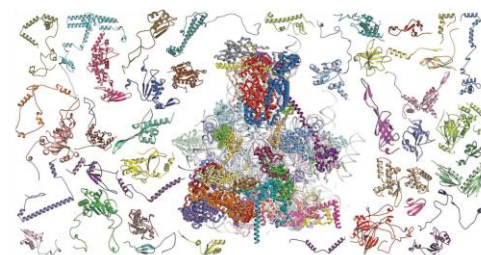
**Scientists *Jacques Dubochet, Joachim Frank and Richard Henderson* were honoured for developing cryo-electron microscopy which simplifies and improves the imaging of biomolecules**

## INSIGHTS

Before the birth of the solar system p. 629  
Directions in origami engineering p. 632



## PERSPECTIVES



**Pieces of the puzzle.** These individual proteins form part of the yeast mitochondrial large ribosomal subunit (2). Amunts et al. built the proteins one by one using maps derived from cryo-EM images of large ribosomal subunits and intact ribosomes. The results, once combined and refined further, are equivalent to an atomic model from a ray crystallography.

## STRUCTURAL BIOLOGY

### Beyond blob-ology

Advanced cryo-electron microscopy yields high-resolution structures of proteins

By Martin T. J. Smith<sup>1</sup> and John L. Rubinstein<sup>1,2\*</sup>

macromolecular assemblies are too large, scarce, or unstable for analysis by these techniques. Single-particle electron microscopy from images showing different views. However, the highly energetic electron beam destroys biological molecules,

## METHOD OF THE YEAR

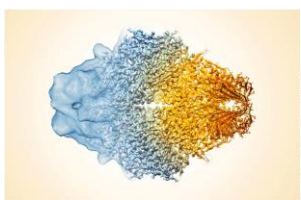
## NEWS FEATURE | SPECIAL FEATURE

### The field that came in from the cold

Recent advances in cryo-electron microscopy are enabling researchers to solve protein structures at near-atomic resolutions, expanding the biological applicability of this technique. Michael Eisenstein reports.

$\beta$ -Galactosidase is not a glamorous protein. Its structure was defined decades ago via X-ray crystallography, and its well-characterized biochemical properties have made it a widely used tool for experimental monitoring of gene expression. But in June 2015, this workhorse became a structural biology superstar. By carefully optimizing their technique, Sriram Subramaniam and colleagues at the US National Cancer Institute were able to visualize this protein with single-particle cryo-electron microscopy (cryo-EM) at an average spatial resolution of 2.2 Å—a level of near-atomic detail

technique was well established—and this left some young structural biologists hungry for something new. "It didn't carry any challenge," recalls Columbia University researcher Joachim Frank. "I didn't want to learn something that was already working." EM, a technique



## BIOCHEMISTRY

including biophysical chemistry & molecular biology

## Current Topic

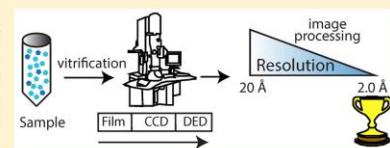
pubs.acs.org/biochemistry

### Cryo-Electron Microscopy and the Amazing Race to Atomic Resolution

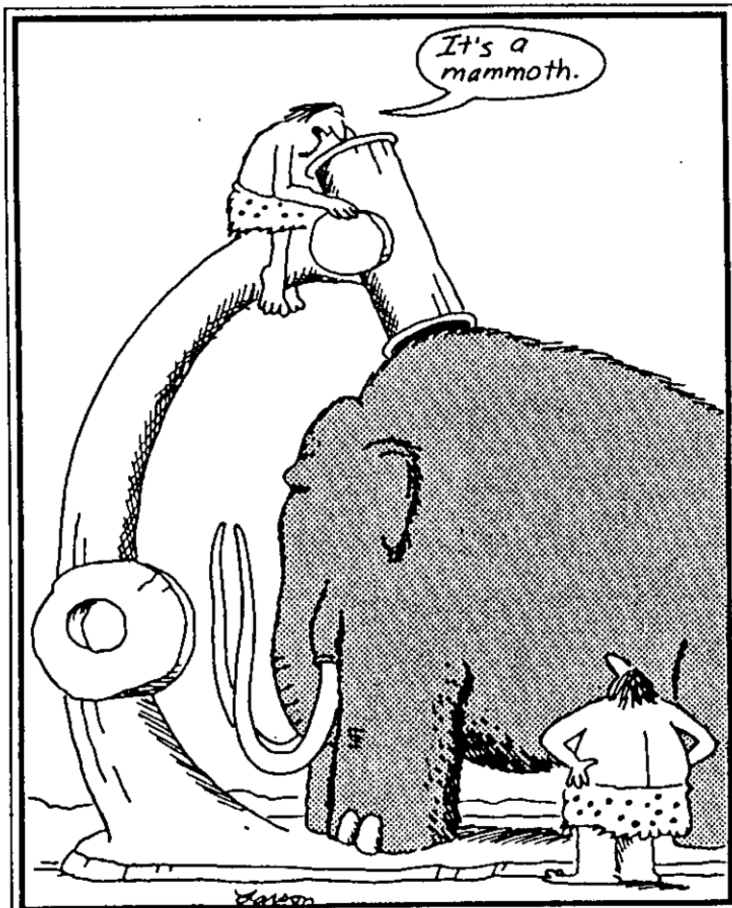
Elad Binshtein and Melanie D. Ohl\*

Department of Cell and Developmental Biology, Vanderbilt University Medical Center, Nashville, Tennessee 37232, United States

**ABSTRACT:** Cryo-electron microscopy (cryo-EM), the structural analysis of samples embedded in vitreous ice, is a powerful approach for determining three-dimensional (3D) structures of biological specimens. Over the past two decades, this technique has been used to successfully calculate subnanometer (<10 Å) resolution and, in some cases, near-atomic resolution structures of highly symmetrical and stable complexes such as icosahedral viruses and ribosomes, as well as samples that form ordered two-dimensional or helical arrays. However, determining high-resolution 3D structures of smaller, less symmetrical, and dynamic samples remains a significant



# The cryo-EM “revolution” is due to three main improvements



Early microscope

**Magnified** view of an object to visualize details using an

**Optical Instrument**

\*\*\* *hardware advancements with instrumentation*

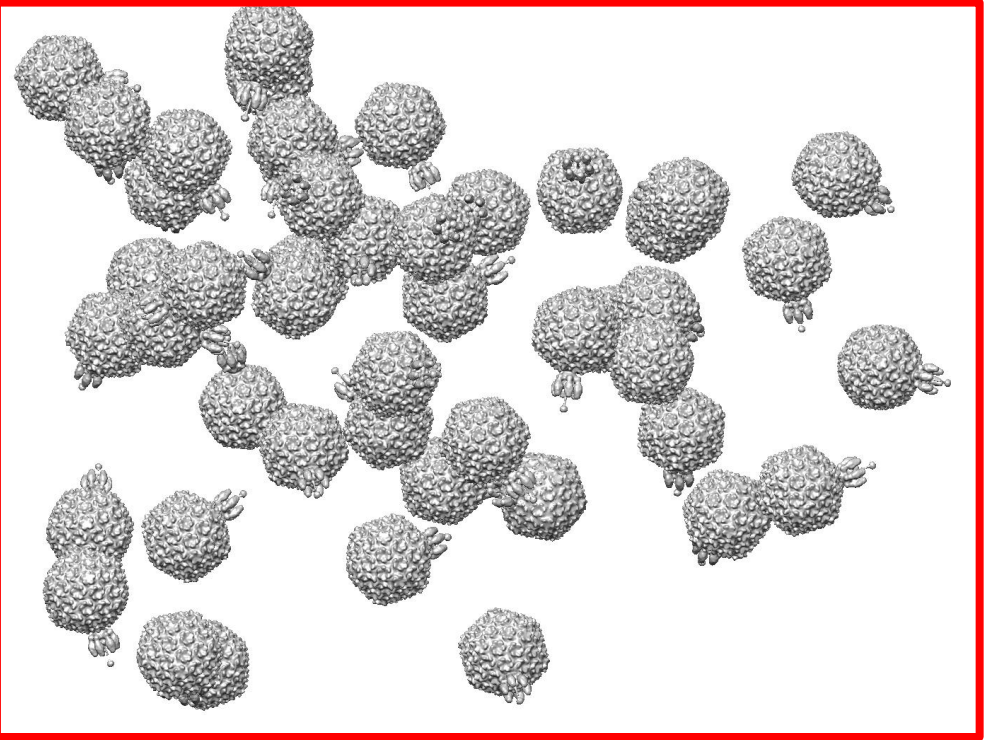
Need to **Form** and **Record** an image

\*\*\* *hardware advancements with cameras*

Ability to process **Big Data**

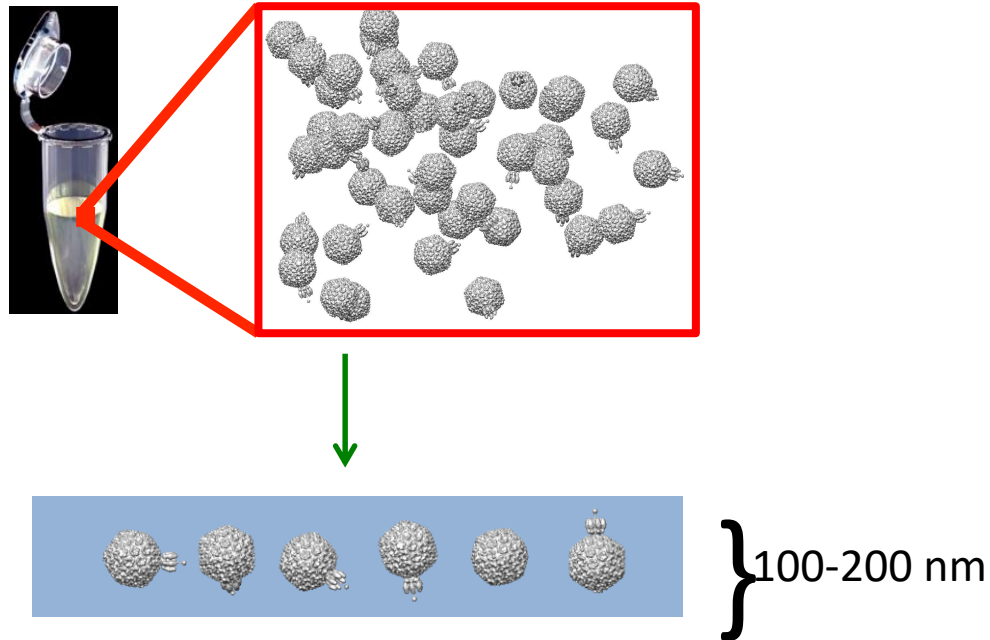
\*\*\* *computation improvements- algorithms and data management*

# Cryo-EM involves imaging biological molecules in a near-native state

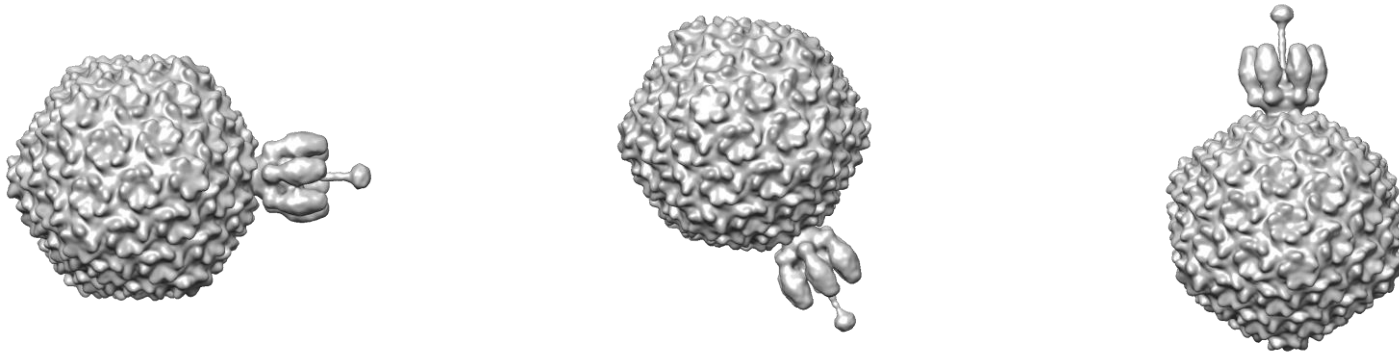




# Sample is frozen in liquid ethane

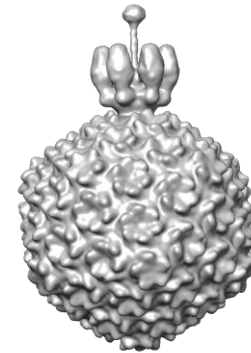
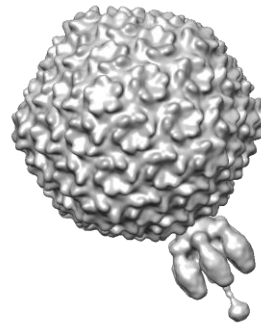
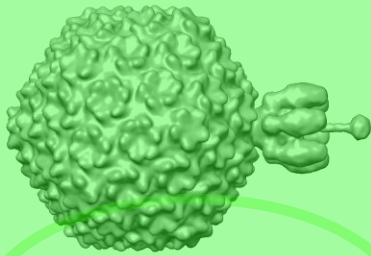


# Different orientations make different projections

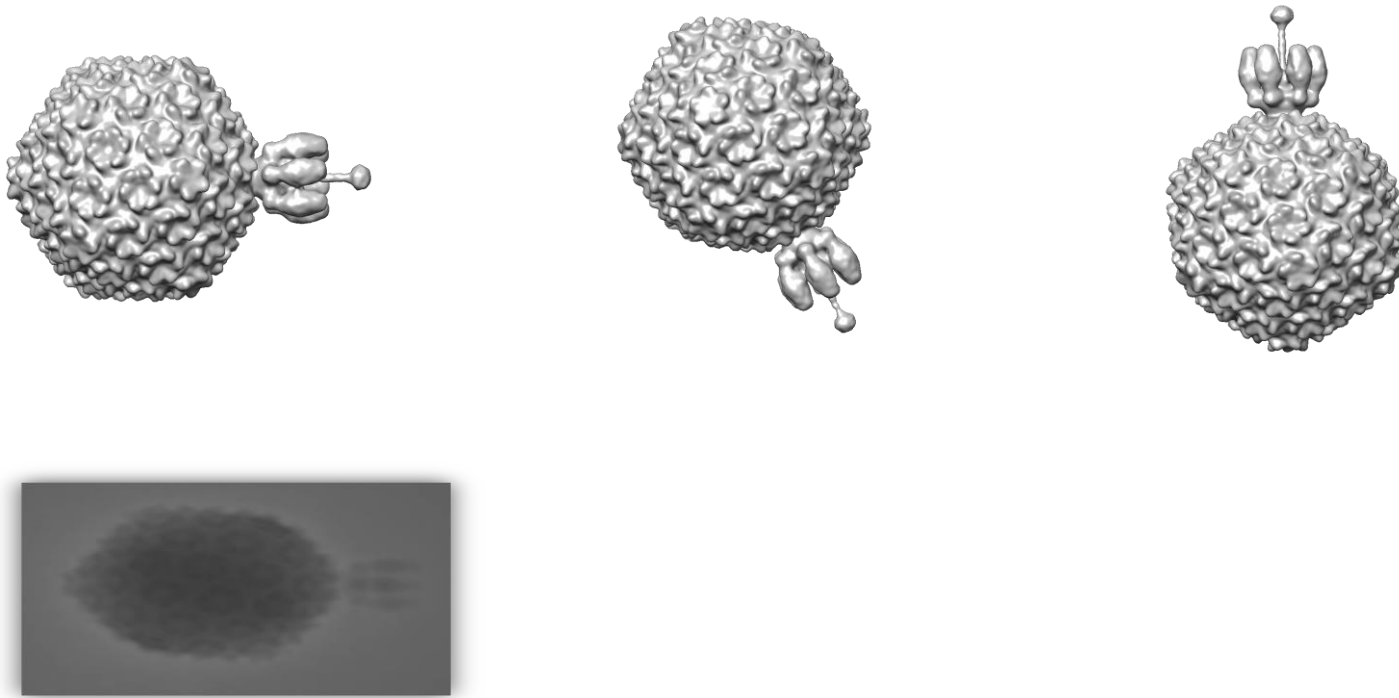




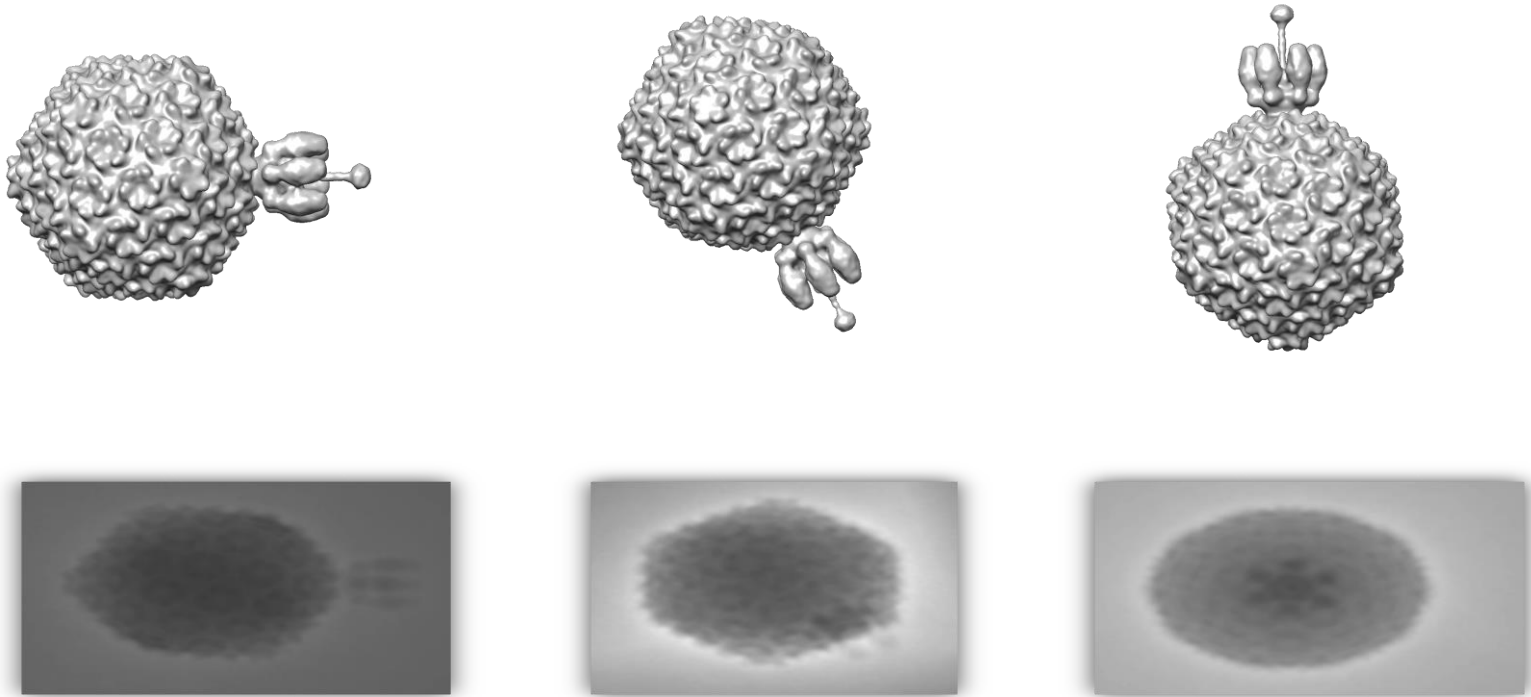
# Different orientations make different projections



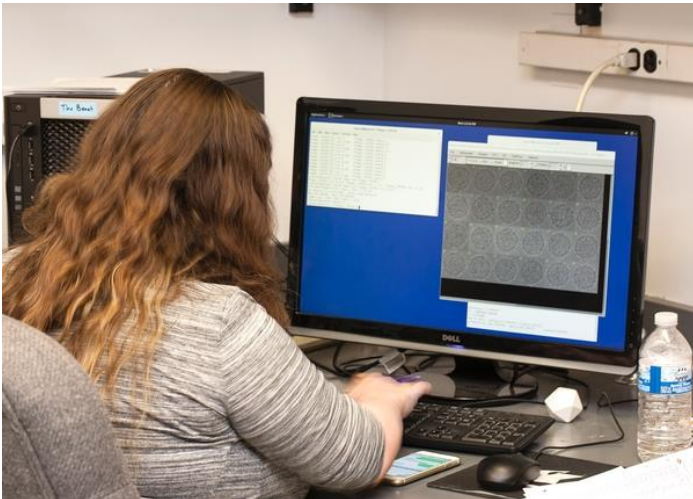
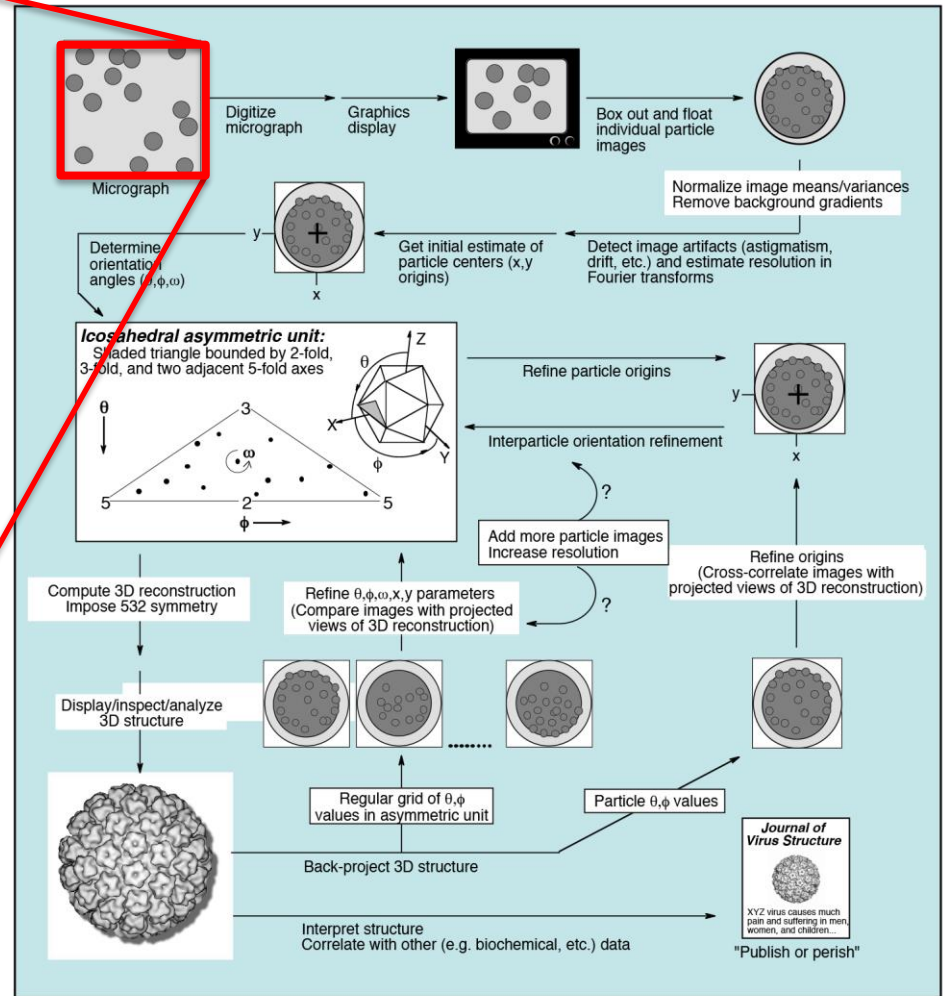
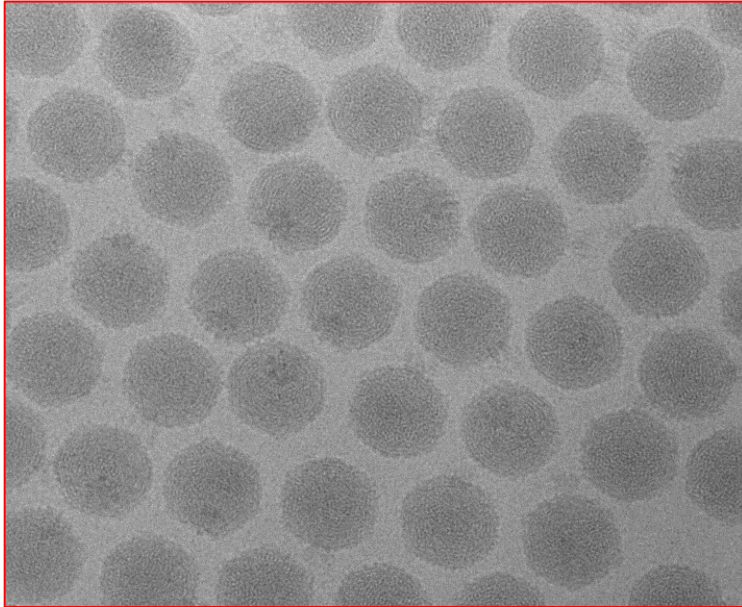
# Different orientations make different projections



# Different orientations make different projections

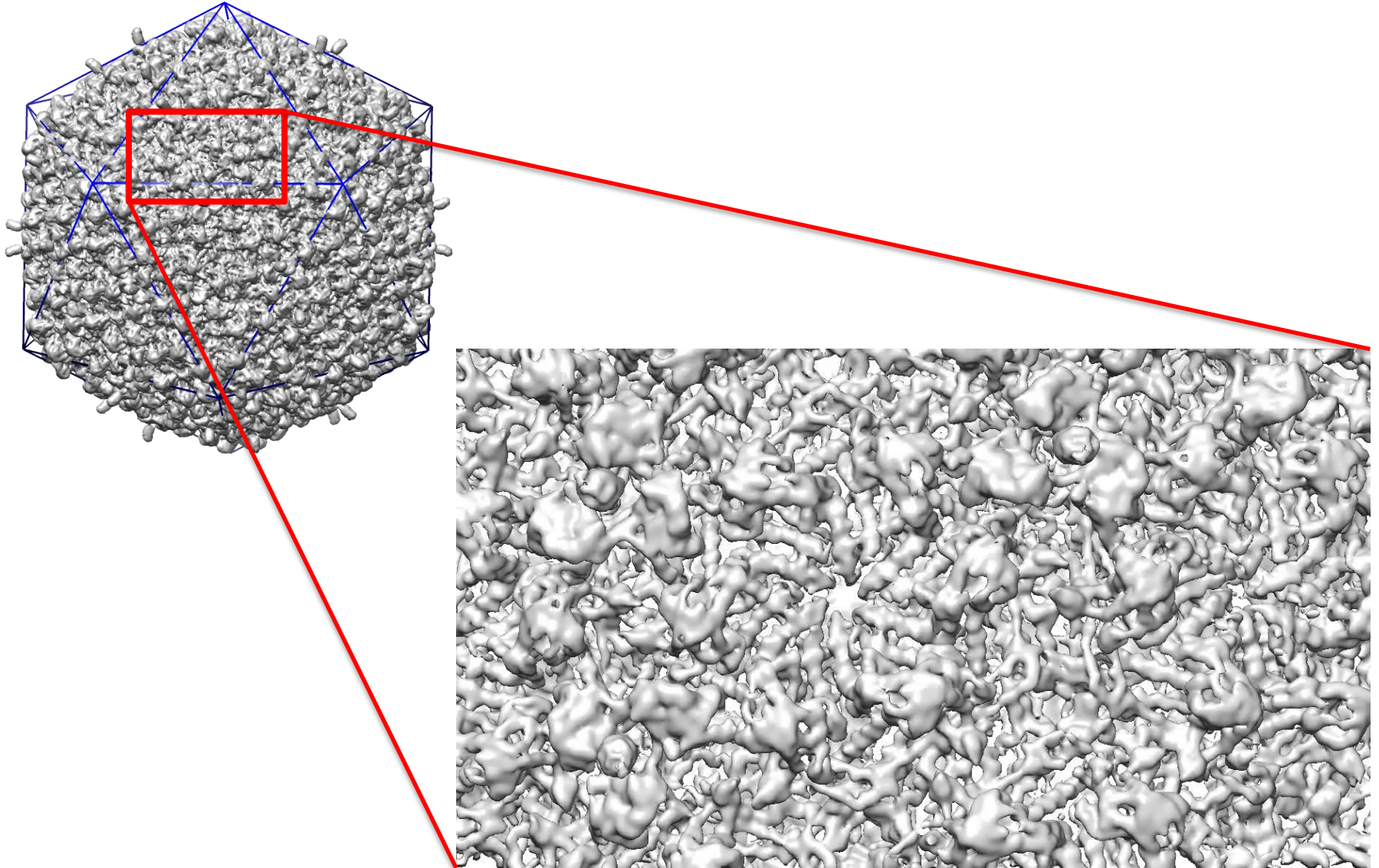


# ~100,000 particles and a lot of computation

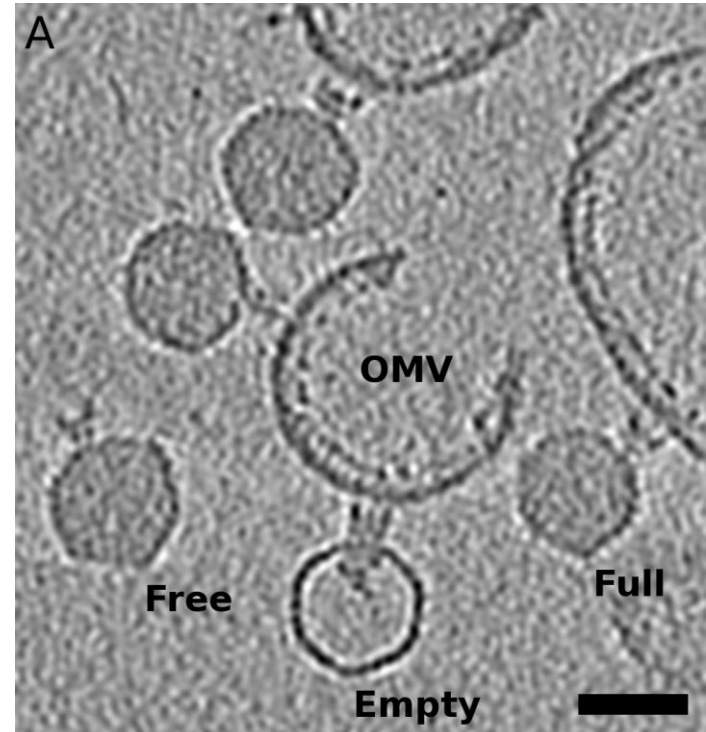
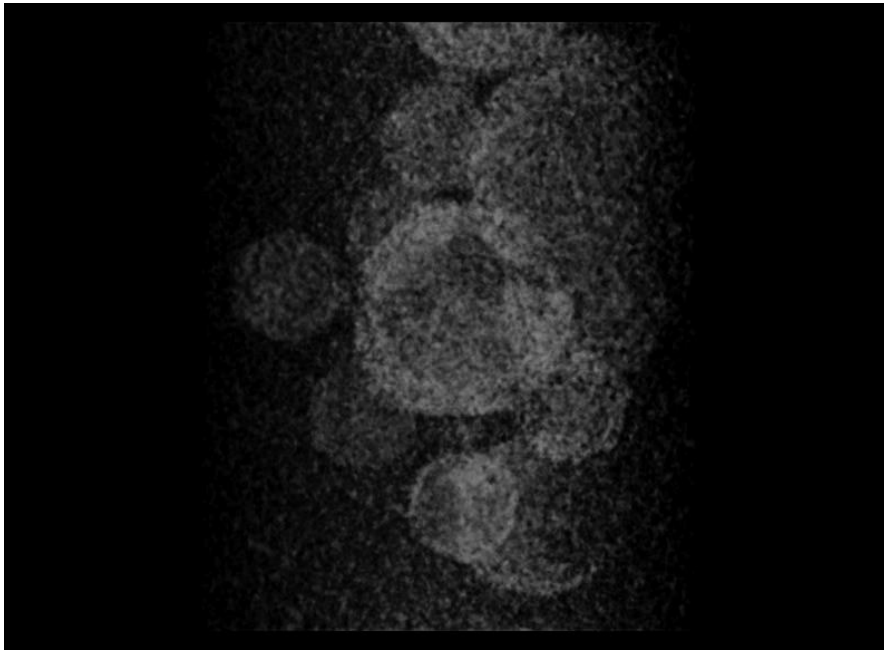




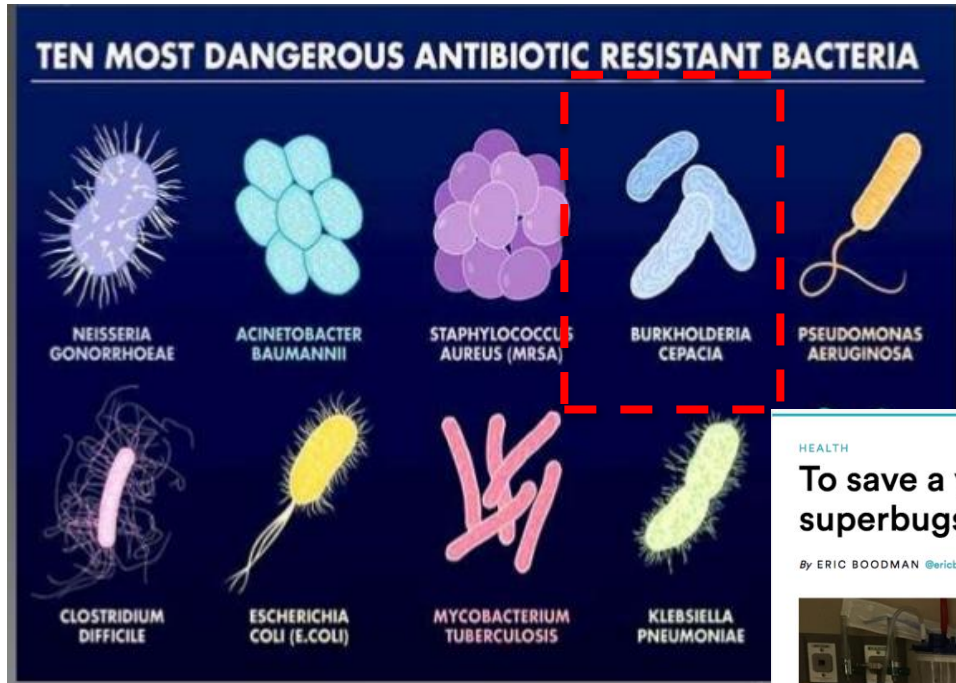
# 3D structure refinement and model building



# Virus infecting lipid vesicles



# Phage therapy is an alternative to antibiotics



## HEALTH

### To save a young woman besieged by superbugs, scientists hunt a killer virus

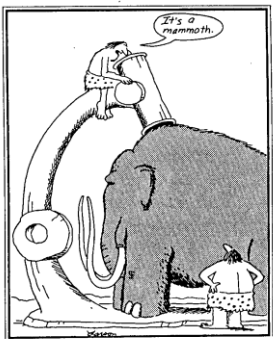
By ERIC BOODMAN @ericboodman / NOVEMBER 10, 2017



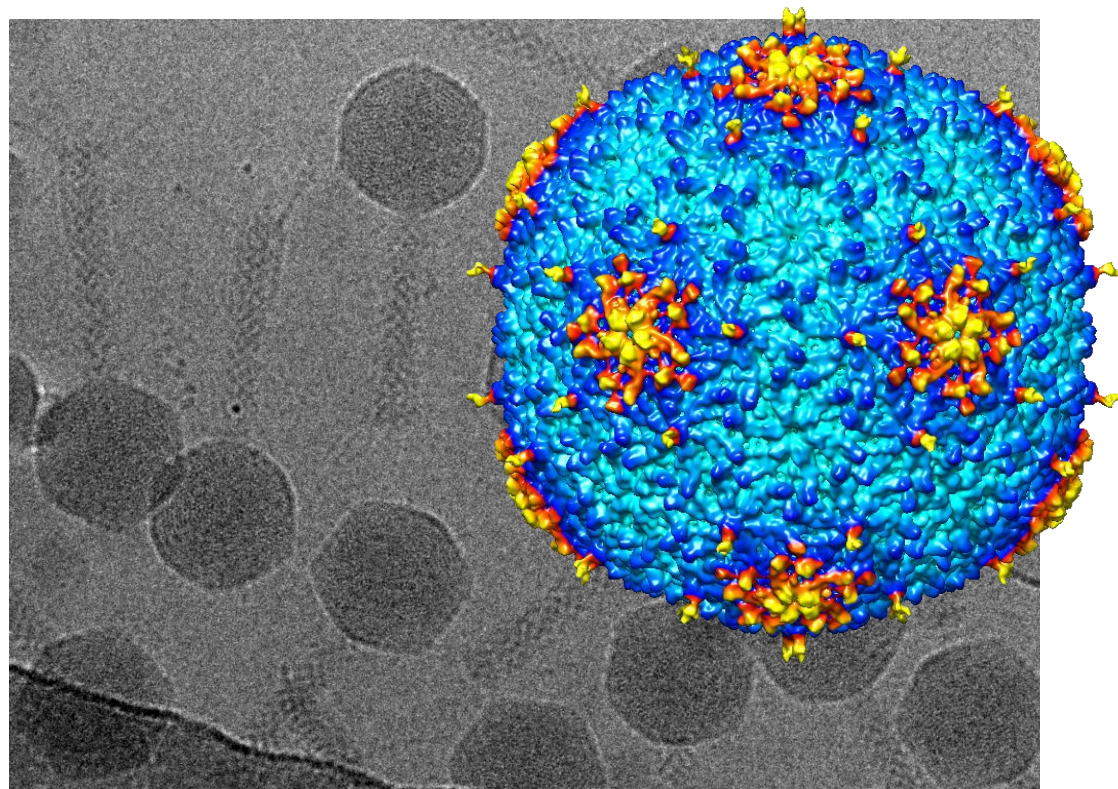
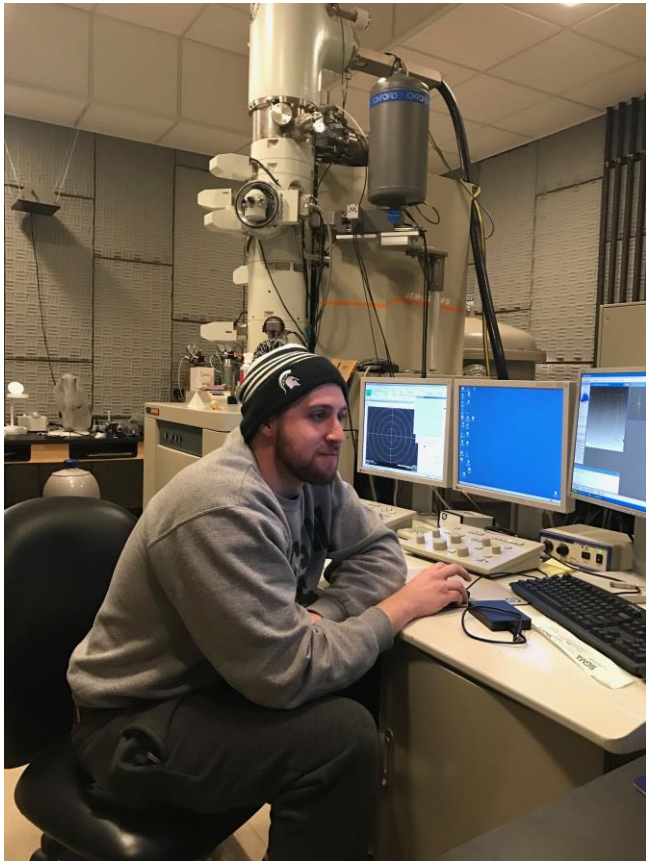
Mallory Smith with her surgeon, Dr. Jonathan D'Cunha, at the University of Pittsburgh Medical Center.

COURTESY DIANE SHADER SMITH

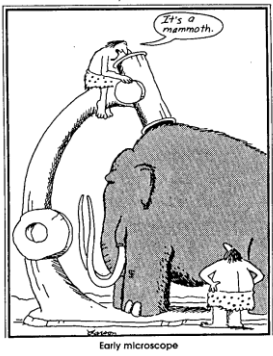




## Cryo-Capable Electron Microscope at MSU







## Cryo-EM future at MSU



Purchased a new  
instrument

Hiring new Faculty

# Acknowledgements

## Acknowledgements

### Parent lab (MSU)

William Dean  
Dr. Sarah Doore  
John Dover  
Madeline Hilton  
Hailee Rose Perret  
Jason Schrad

### Parent lab Past Members

Kaitlynn Bohm  
Natalia Porcek (Hubbs)  
Jacob Taylor  
Sophia Sdao

### Funding:

NIH R01 GM110185  
AAAS Marion Milligan Mason Award for Women in the Chemical Sciences  
NSF CAREER



## **MICHIGAN STATE UNIVERSITY**

February 16, 2018

### **MEMORANDUM**

**To:** Trustee Policy Committee

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

**Subject:** Approval of Contract Terms: *EeroQ Corporation*

### **RECOMMENDATION**

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *EeroQ Corporation*, a company in which MSU faculty member Johannes Pollanen holds a financial interest.

### **RESOLUTION**

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves a sponsored research agreement with *EeroQ Corporation*, 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.



### **OFFICE OF THE PROVOST**

Michigan State University  
Hannah Administration Building  
426 Auditorium Road, Room 430  
East Lansing, Michigan 48824

Phone: 517-355-6550  
Fax: 517-355-9601  
provost.msu.edu

### **BACKGROUND**

In compliance with State law, public notice of the University's intent to negotiate contracts with *EeroQ Corporation*, a Delaware corporation, was given at the Board of Trustees meeting on June 21, 2017. The terms of a sponsored research agreement are now being presented for Board approval.

Johannes Pollanen, Assistant Professor in the Department of Physics and Astronomy, 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 *EeroQ Corporation*.

cc: Trustee Finance Committee, J. Engler, S. Udpa, B. Beekman, S. Hsu,  
R. Noto, B. Mattes, K. Zayko, C. Berg

## SPONSORED RESEARCH AGREEMENT TERM SHEET

<b>Party:</b>	EeroQ Corporation
<b>Sponsored Research Agreement:</b>	Proof of concept development of an on-chip charge sensor for single electron qubit trapping
<b>Term:</b>	April 1, 2018 – June 30, 2019
<b>Potential Commercial Application:</b>	Quantum computing and sensing for applications in information processing and charge sensing
<b>Payment Terms:</b>	\$100,000 to MSU to fund the research
<b>Services Provided:</b>	By MSU to EeroQ Corporation: work toward development of a non-fabrication technique and low temperature measurement protocols to enable the design of a single electron detection device  By EeroQ Corporation to MSU: None contemplated under this agreement
<b>Use of University Facilities/Personnel:</b>	Keck Microfabrication Facility at MSU in East Lansing
<b>Organization Type:</b>	Delaware corporation
<b>Personnel Interest:</b>	Johannes Pollanen, holder of the Jerry Cowen Chair of Experimental Physics and Assistant Professor in the Department of Physics and Astronomy, and members of his family own or have options to buy an ownership interest of more than 1% of the company.

**MICHIGAN STATE  
UNIVERSITY**

February 16, 2018

**MEMORANDUM**

**To:** Trustee Policy Committee

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

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

**RECOMMENDATION**

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *MagPlasma, Inc.*, a company in which MSU employees Dr. Thomas Schuelke, Dr. Qi Hua Fan, and Mr. Martin E. Toomajian hold a financial interest.

**RESOLUTION**

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves an option agreement with *MagPlasma, Inc.*, 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 *MagPlasma, Inc.*, a Michigan corporation, was given at the Board of Trustees meeting on December 15, 2017. The terms of an option agreement are now being presented for the Board's approval.

Dr. Thomas Schuelke, Professor in the Department of Electrical and Computer Engineering, Dr. Qi Hua Fan, Associate Professor in the Department of Electrical and Computer Engineering, and Mr. Martin E. Toomajian, an employee in the Office of the Executive Vice President, and members of their families, have, or have options to buy, an interest in the company.

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

cc: Trustee Finance Committee, J. Engler, S. Udpa, B. Beekman, S. Hsu,  
R. Noto, B. Mattes, K. Zayko, C. Berg

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Fax: 517-355-9601  
provost.msu.edu

## OPTION AGREEMENT TERM SHEET

<b>Party:</b>	MagPlasma, Inc.
<b>Agreement:</b>	Option to exclusively license patent rights in all fields of use
<b>Term:</b>	One year from SBIR funding with term extension for up to two years
<b>Technology:</b>	MSU disclosure TEC2017-0044 "Magnetic Field Enhanced Plasma Activation of Biochar" MSU disclosure TEC2018-0064 "Falling-Bed Plasma Reactors for Activating Biochar" and US Patent application No. US 14/701,125
<b>Technology's Potential Commercial Utilization:</b>	Material processing systems and services; anticipated material is biochar for filters and electronic applications (super capacitors)
<b>Payment Terms:</b>	Option fee of \$1,000, first one-year extension \$2,000
<b>Services Provided:</b>	By MSU to <i>MagPlasma</i> : None contemplated under the agreement  By <i>MagPlasma</i> to MSU: None contemplated under the agreement
<b>Organization Type:</b>	Michigan corporation
<b>Personnel Interest:</b>	Dr. Thomas Schuelke, Professor in the Department of Electrical and Computer Engineering, Dr. Qi Hua Fan, Associate Professor in the Department of Electrical and Computer Engineering, and Mr. Martin E. Toomajian, an employee in the Office of the Executive Vice President, and members of their families, have, or have options to buy, an interest in the company.

**MICHIGAN STATE  
UNIVERSITY**

February 16, 2018

**MEMORANDUM**

**To:** Trustee Policy Committee

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

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

**RECOMMENDATION**

The Trustee Policy Committee recommends that the Board of Trustees approve a contract between Michigan State University and *OmiDx, Inc.*, a company in which MSU employees Dr. Timothy Zacharewski, Mr. Rance Nault, and Dr. Dirk Colbry, hold a financial interest.

**RESOLUTION**

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby approves an option agreement with *OmiDx, Inc.*, 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.

**OFFICE OF THE  
PROVOST**

Michigan State University  
Hannah Administration Building  
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East Lansing, Michigan 48824

Phone: 517-355-6550  
Fax: 517-355-9601  
provost.msu.edu

**BACKGROUND**

In compliance with State law, public notice of the University's intent to negotiate contracts with *QuHant, LLC* was given at the Board of Trustees meeting on June 21, 2017. *QuHant, LLC* was the previous name of *OmiDx, Inc.* The same faculty hold the same interest in *OmiDx, Inc.*, as they did in *QuHant, LLC*. The terms of an option agreement with *OmiDx, Inc.*, are now being presented for the Board's approval.

Dr. Timothy Zacharewski, Professor in the Department of Biochemistry & Molecular Biology, Mr. Rance Nault, employee in the Department of Biochemistry & Molecular Biology, and Dr. Dirk Colbry, employee in the Department of Computational Math, Science and Engineering, and members of their families have, or have options to buy, an interest in the company.

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

cc: Trustee Finance Committee, J. Engler, S. Udpa, B. Beekman, S. Hsu,  
R. Noto, B. Mattes, K. Zayko, C. Berg

## OPTION AGREEMENT TERM SHEET

<b>Party:</b>	OmiDx, Inc.
<b>Agreement:</b>	Option to exclusively license patent rights in all fields of use
<b>Term:</b>	Six months from the effective date with term extension for up to one year
<b>Technology:</b>	MSU disclosure TEC2014-0104 "Quantitative Histological Analysis Tool (QuHAnt)"
<b>Technology's Potential Commercial Utilization:</b>	Disease marker or toxicity detection of liver tissue; identifies and quantifies histological features that are indicative of a response to the toxin/chemical of interest (i.e., drugs, nanoparticles, viruses, bacteria, radiation)
<b>Payment Terms:</b>	Option fee of \$1,000, additional six months extension fee \$1,500
<b>Services Provided:</b>	By MSU to <i>OmiDx, Inc.</i> : None contemplated under the agreement  By <i>OmiDx, Inc.</i> to MSU: None contemplated under the agreement
<b>Organization Type:</b>	Delaware corporation
<b>Personnel Interest:</b>	Dr. Timothy Zacharewski, Professor in the Department of Biochemistry & Molecular Biology, Mr. Rance Nault, employee in the Department of Biochemistry & Molecular Biology, and Dr. Dirk Colbry, employee in the Department of Computational Math, Science and Engineering, and members of their families, have, or have options to buy, an interest in the company.