

Minnesota Academy of Science Newsletter



MINNESOTA ACADEMY OF SCIENCE

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Message From the Director

by Celia Waldock

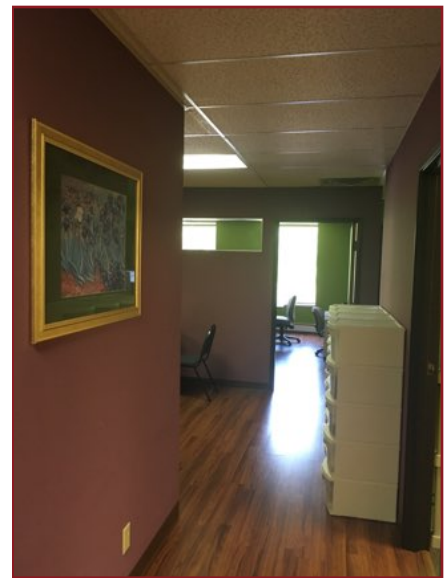
We are delighted to announce that we have moved the Minnesota Academy of Science offices to a more central location in the Twin Cities. We are located at:

970 Raymond Avenue
Suite 103
St. Paul, MN 55114

Our new phone numbers are:
Office: 651-917-3994
Fax: 651-917- 3978

This address is just off Highway 280 and University Avenue, easily accessible from several major freeways. We

are also looking forward to having meeting rooms available for our use, free of charge.



970 Raymond Avenue ■ Suite 103 ■ St. Paul, MN 55114

Phone: 651-917-3994 ■ Fax: 651-917-3978

contact@mnmas.org ■ www.mnmas.org

Message from the President

Dr. Stephanie D. Yancey

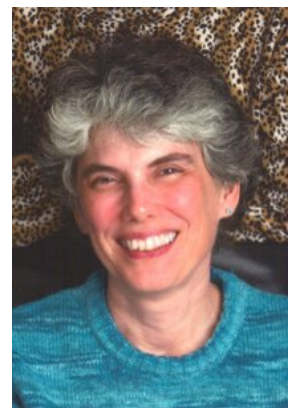
As we approach the last month of summer, some of you may be already looking ahead to a new school year. Others are dealing with mid-year reviews or a new fiscal year at your company or are enjoying a well-earned retirement.

At the Minnesota Academy of Science, we are looking forward to the Fall. It is the time we take stock of our current programs and plan for the future. I have enjoyed being part of the Board since I joined in 2012 because our board members come from many areas of interest and expertise. We have Board members from a variety of industries, as well as educators from many institutions of learning. This is quite different from my previous experience in California, where I was one of two industry representatives on a Board of 12-15 people. It made for a limited focus and smaller pool of resources, and we were always struggling to compete for time and money.

In contrast, though most of my MAS involvement has been as a judge at the State Science & Engineering Fair and a reviewer of papers for the High School STEM Communicator Awards, I really enjoy our Science Salon events that are for the professionals (including college and post-graduates). It gives me a chance to expand my own knowledge, interact with other scientists/engineers and visit interesting places like the 3M Innovation Center, FabLab and SAFL. I look forward to attending the Winchell Symposium and trying my hand as a judge at Science Bowl next year. Though from the list of questions I've seen, maybe I'll volunteer as a timer instead!

These are all programs that are mature and have coordinators who do phenomenal jobs. But MAS cannot rest on its laurels. To compete for limited dollars, we need to show potential donors that we are providing unique programs. This means we also need to expand our Board membership so that we can build our program portfolio, while not letting our current

programs suffer from lack of support. We cannot fulfill both goals without your help. This leads me to an appeal to all of you who have been faithful members of MAS through the years. **If you have an idea for a program or a need you see unfulfilled... you want to simply "pay it forward"... or you just yearn to hang out with other scientists, engineers (you'll notice I mention both...always) and others for whom STEM is a way of life, contact me (sdyanney@beckman.com) or our Executive Director, Celia Waldock (celiawaldock@gmail.com).** Board terms are for three years and we meet 4-6 times a year for 1.5 hours in the evening. A light dinner is provided.



That reminds me to take this opportunity to introduce our new Board Vice-President: Dr. William Heidcamp. He has been a member of MAS for at least two decades as a Professor of Biology at Gustavus Adolphus College. Bill joined the Board in 2002 and was Treasurer (2003-4), then President (2005-6), as well as acting Executive Director (2006). His wide-ranging experience around the world (*Dean of the College of Arts and Sciences at the American University of Sharjah in the UAE in 2006-2010; Vice President of Academic and Student Affairs at the American University of Phnom Penh, Cambodia, in 2015*) is invaluable. I look forward to working with Bill (and leaning on his expertise and historical perspective on MAS).

As he said in his statement of interest to become Vice-President, "MAS is unique in its organization, bringing together working scientists from industry and education and from junior high through post-graduate studies. The focus on encouraging an open discussion of science education improvement at the state level is an emphasis among only a handful of academies left in the United States."

I couldn't agree more! Enjoy the rest of your summer and I look forward to working with you in the future.

SAVE THE DATE: Sept. 22 Science Salon

**“Protecting Our Pollinators”
with Dr. Marla Spivak**

Curious about the state of our pollinators?

Join us for a talk by Dr. Marla Spivak on Thursday, Sept. 22, 6-8 p.m., to learn more about the research she and her team have been doing to help improve the health of our bee populations. It will be held at the Dodge Nature Center, with a tour of the apiary.

Marla Spivak is a MacArthur Fellow and McKnight Distinguished Professor in Entomology at the University of Minnesota. Recent awards include the 2015 Minnesota AgriGrowth Distinguished Service Award, the 2016 Siehl Prize Laureate for Excellence in Agriculture, and the 2016 Wings WorldQuest Women of Discovery Earth Award.

She and long-time hobby beekeeper Gary Reuter bred a line of honey bees, the Minnesota Hygienic line, to defend themselves against diseases and parasitic mites. Current research includes studies of the benefits of plant resins (propolis) to honey bees, and the effects of agricultural landscapes and pesticides on bee health.

All subscribers to this newsletter and our biweekly e-news will be alerted when registration opens.

You can also stay tuned to our [Linked In](#) and [Facebook](#) pages, or visit the [MNMas.org](#) website.



Dr. Marla Spivak will be our next Science Salon guest speaker

The Minnesota Academy of Science works to bring scientists from different disciplines together. Science Salon is a forum for professional scientists and engineers to stay current on groundbreaking research and emerging technologies, engage in cross-disciplinary networking, and participate in philanthropic activities.

Contact: Ashley Smith, 651-587-3115 or Celia Waldock (celiawaldock@gmail.com)

Visit the website to read articles from past Science Salons:

[Dr. Michael Osterholm, infectious diseases](#)

[Dr. Fotis Sotiropoulos, St. Anthony Falls Lab](#)

PROGRAM NEWS

Winchell Undergraduate Research Symposium

The 83rd Annual Meeting & 29th Winchell Undergraduate Research Symposium was hosted on Friday, April 29th, 2016 at Coffman Memorial Union at the University of Minnesota.

The symposium enables undergraduate students to present their research to a broad audience. It also provides the opportunity for individuals involved in science to meet their colleagues in colleges, industry, and government, and to hear or present the results of research with a regional emphasis.

[Visit our website for a list of award winners.](#)

"I had never given a talk of this magnitude before, so was understandably nervous. However, once I was in front of my audience and words started flowing, my nerves melted away. I was talking about a year's worth of research, hours of calculations, and many days scratching my head trying to put the puzzle pieces together. For me, the Winchell Symposium provided an outlet to show the excitement and passion about what I've been working on."

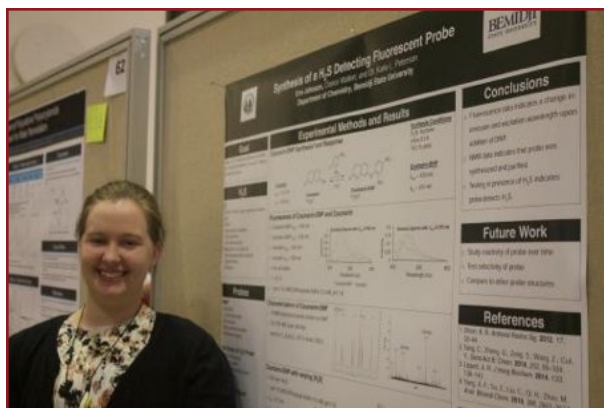
— Levi Walls, who presented about seismological impacts on potential underground gravitational wave detectors



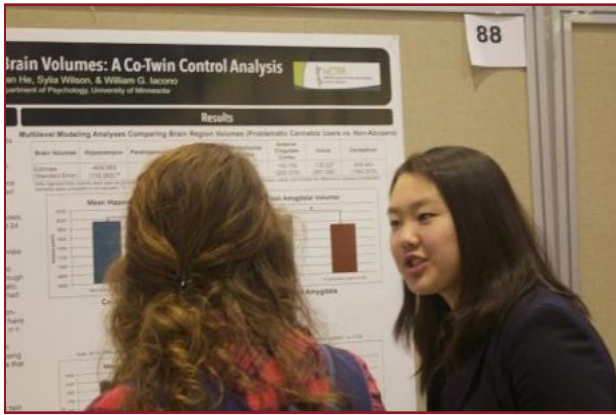
"Understanding genetic/environmental factors of Type 1 Diabetes in Somali children." Zahra Mahamed, University of Minnesota Twin Cities, biological sciences – winner of Thomas B. Magath Award for Excellence in Cellular and Molecular Biology.



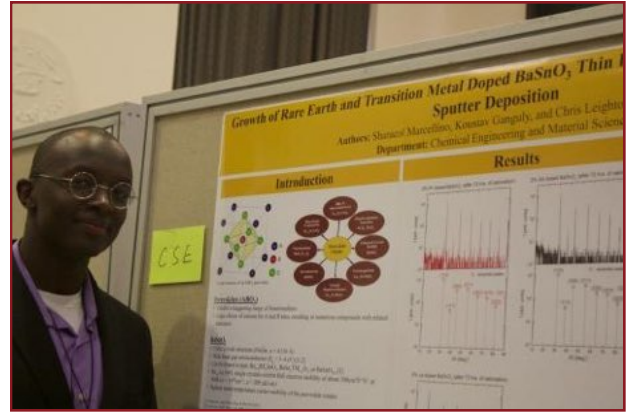
"Were spiny or non-spiny shells a stronger variable for longevity?" Broc Kokesh University of Minnesota - Morris, science and mathematics – second-place winner of Tri Beta award (Biological Honor Society) for poster presenter.



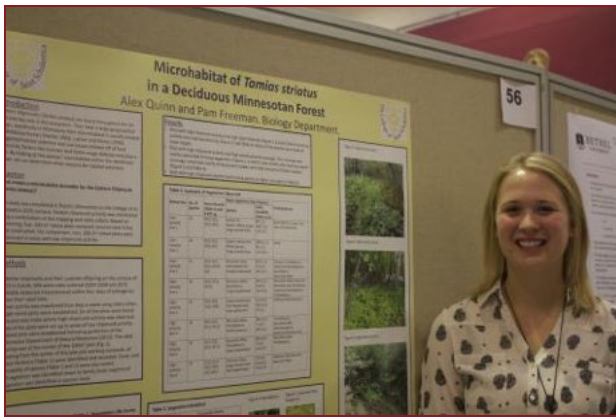
"Fluorescent probing" Erin Johnson, Bemidji State University, chemistry.



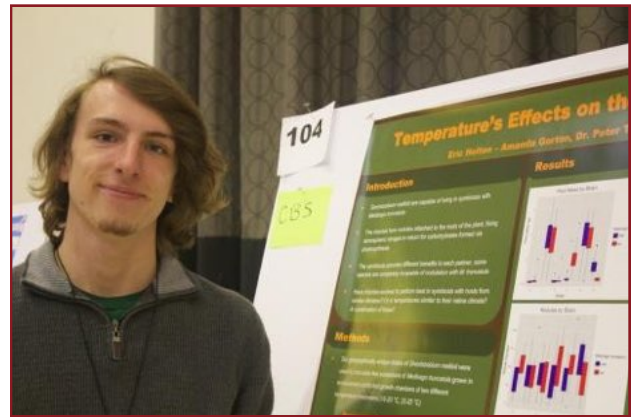
"Cannabis use and the brain." Megan He, University of Minnesota Twin Cities, psychology – winner of Stirling Stackhouse Award for Excellence in Social Science and one of Top 5 paper presenters.



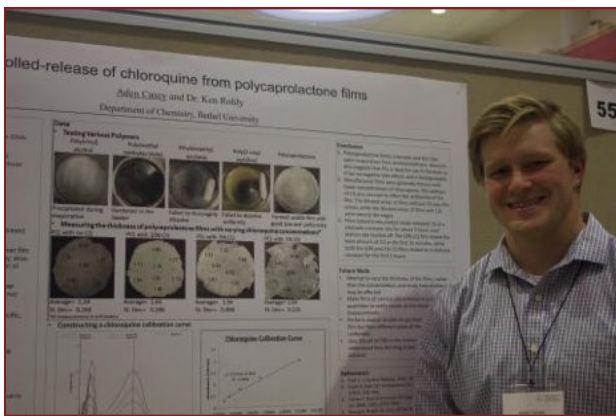
"Making new metal compounds." Sharacol Marcellino, University of Minnesota Twin Cities, chemical engineering and materials science – winner of Curtis D. Motchenbacher Award for Excellence in Engineering.



"Where do chipmunks tend to hang out, and why?" Alexandra Quinn, College of St. Scholastica biology – one of two winners of Arthur Wilcox Award for Excellence in Ecology & Environmental Science.



"What happens when you combine legumes from different areas of the world with the rhizobia bacteria in soil devoid of nitrogen?" Eric Holton, University of Minnesota Twin Cities, plant biology



"Controlled release of medication per film." Aden Casey, Bethel University, chemistry.



"Reducing infection rate of heart assist devices." Adeel Ahmad, University of Minnesota Twin Cities microbiology/medicine – winner of Hiram E. Essex Award for Excellence in Organismal & Physiological Science.

PROGRAM NEWS

National Junior Science & Humanities Symposium

Ester Rose Archer finished second in the Environment category at the National Junior Science & Humanities Symposium in Dayton, Ohio, in April for her oral presentation, "Reducing phosphorus in stormwater basins using algae spherification."

Between her Minnesota Academy of Science earnings, and her National JSHS scholarship award, she has earned \$12K toward the college of her choice.



Minnesota Academy of Science sends the top five paper presentations to the nationals (students pictured above; military sponsor privacy rules prevent us from disclosing identifying details).

The North Central Regional Junior Science and Humanities Symposia (JSHS) Program promotes original research and experimentation in the sciences, engineering, and mathematics at the high school level and publicly recognizes students for outstanding achievement. JSHS aims to widen the pool of trained talent prepared to conduct vital research and development.

STUDENT THANK YOUS

2016 Science Bowl

“This was my first year participating in Science Quiz Bowl. It was a really fun and also educational experience and the competition at Macalester gave me the opportunity to meet many other students with similar interests as mine. I’m excited to return next year.”

– *Katie Lyon, Burnsville*

“Thank you so much for your support for us and our Science Bowl experiences. Through this competition, my teammates and I have learned a lot. [As an immigrant from Korea] I learned about Science Bowl in 2014 and it encouraged me to make myself more dedicated to science, and of course, to English. I have improved significantly on using correct scientific terms and listening to them at a faster pace, just like scientists and professional researchers would.”

– *Matthew P. Jeon, Wayzata*



From the members of the Edina High School Science Bowl team, which competed in the national competition in Washington, D.C.

Though it is a team event, Science Bowl promotes individual leadership and encourages members to delve into a subject that interests them. In preparation for the competition, I invested a lot of time and effort into learning more about biological concepts and experimental techniques. – *Meghana Iyer*

Science Bowl provides me an opportunity to hear about interesting things from all different areas of science – even some I’ve never heard of! I’ve learned to use knowledge to complement the team, rather than taking control of everything. – *Michael Tang*

We had to work out each of our strengths and weaknesses, and identifying these was really helpful for our team as well as us as individuals. – *Jenny Zhang*

I have gained skills in leadership, working with others, and learning. – *Mathew Zappa*

Science Bowl helped me learn that my skill set in science is complemented by a skill set of teamwork, optimism and sportsmanship. – *Bobby Scalia*

2016 Minnesota State Science & Engineering Fair

The State Science & Engineering Fair enables youth to participate in year-long programs leading up to regional and state exhibitions. The process involves using the scientific method – developing a hypothesis, observing, measuring and testing – then presenting the results to a wider audience. Students learn critical 21st Century skills for college and career readiness: critical thinking, problem solving, collaboration, teamwork, self-management, conscientiousness, communication, presentation. Participation motivates young people to seek STEM degrees, generating our future leaders, innovators and scientists.

[Grand Award winners and images on our website](#)

[Special Award winners and images on our website](#)

A Sample of 2016 Award Winners

Seagate Rising Star Awards

- Middle School: Julie Brouwer, Eagan, Calvin Christian School (adviser Susan Koppendrayner), "Leafy Green Astronauts: How Space Radiation Affects Seed Germination and Plant Growth"
- High School: Madeline McCue and Evelyn McChesney, Golden Valley Breck School (adviser Princesa VanBuren Hansen), "Turning Probiotics Into Antibiotics: Engineering a Broad-Spectrum Antibacterial Probiotic via Inclusion of Antimicrobial Peptide-Encoding DNA (year 2)

Intel Excellence in Computer Science Award

- Akin Campbell, South St. Paul/Eagan High School (adviser Lana Yarosh), "Collaboration Pals: Creating More Opportunities for Intergenerational Relationships With Engaging Technology."
- Griffin Macris, New Prague High School (adviser Willie Macris), "Developing and Analyzing Strategies in a Two-player Domino Tiling Game."

3M Innovation Award

- Jennie Ehlert & Elizabeth Berman, Breck School (adviser Virginia Amundson), "Russel's Wrestle: Predicting Meltdowns in an FASD Child."
- Vincent Ramirez, Afton, Oakpark Elementary (adviser Tina Walski), "Conductive Paste."
- Lucas Harrison, Duluth, Ordean Middle School (adviser Annette Strom), "An Affordable, Precise Robotic Prosthesis for Socioeconomically Underserved."
- Prashant Godishala & Brennan Clark, Breck School (adviser Princesa VanBuren Hansen), "Predicting a Cancerous Outcome: Creating a Novel Test for Assessing Risk of Human Papilloma Virus-Associated Oropharyngeal Cancer."
- John Gilles, Winona High School (adviser Ken Mann), "Improving and Implementing Absorption Technology to Fight Floods."
- Elena Berman & Archana Murali, Breck School (adviser Robert Mittra), "Window to the Brain: Using Retinal Biomarkers to Diagnose Alzheimer's Disease."

STUDENT THANK YOUS

"My participation in science fairs has shaped who I become, for I know that quality work takes time, effort, patience, intelligence, and passion. By participating in this experience, I have been able to expose myself to a new culture in which everyone has a passion for science. Everyone that attends has something brilliant to share with the rest of Minnesota and when you walk in to the exhibit hall for judging you can feel the energy, the nerves, and the hunger for knowledge with regards to science. My participation in the Minnesota science fair has influenced me to pursue a career in a science or engineering field, especially related to the environment."

— *Preethi Kaliappan, Rochester*

"This was my first year in State Science Fair and I feel the deepest gratitude. My experience with the volunteers, the judges, other students, parents and all others affiliated with the event — I can't even express how amazing it was for me. I truly enjoyed getting to talk with others in the public viewing. This has really showed me how important strong presentation skills are in science. Getting to listen to and then converse with a high-ranking worker of Medtronic was a very humbling experience and has helped me see my interest in one day becoming a biomedical engineer — an occupation I hadn't thought of before. I hope you continue to fund Science Fair in Minnesota and help spark the imaginations of thousands of students to solve problems in innovative ways. Because I know this program can make a difference for students."

— *Charles Osugo, Elk River*

2016 International Science & Engineering Fair Results

The global representation at National Science & Engineering Fair, held this year in Phoenix, introduced Minnesota students to peers from places as far-flung as Qatar, Romania, Luxembourg and Argentina.

Translational Medical Science

Brennan Clark and Prashant Godishala, Breck School

- CHINA TRIP – Intel Foundation Cultural and Scientific Visit to China Award for their research "Predicting a Cancerous Outcome: Creating a Novel Test for Assessing Risk of Human Papilloma Virus-Associated Oropharyngeal Cancer."
- BEST IN CATEGORY – \$5,000
- First Grand – \$3,000

Computational Biology and Bioinformatics

Elena Berman & Archana Murali, Breck School

- Second Grand \$1,500 – "Window to the Brain: Using Retinal Biomarkers to Diagnose Alzheimer's Disease."

Biomedical Engineering

Madeline Chawla McCue and Evelyn Grace McChesney, Breck School

- Second Grand \$1,500 – "Turning Probiotics into Antibiotics: Engineering a Broad-Spectrum Antibacterial Probiotic via Inclusion of Antimicrobial Peptide-Encoding DNA, Year Two."

International Science & Engineering Fair Results continued

Environmental Engineering

Ester Rose Archer, Loyola High School, Mankato

- Third Grand \$1,000 – “Reducing Phosphorus in Stormwater Basins Using Algae Spherification.”

Embedded Systems

Andrew John Eggebraaten, John Marshall High School, Rochester

- Fourth Grand \$500 – “Engineering a Modern-Day Enigma Machine.”

Serena Liang Jing, Saint Paul Central High School

- Fourth Grand \$500 – “Inexpensive, Portable Glucose Monitor for Diabetics via a Cross-linked Sensing Fluid.”

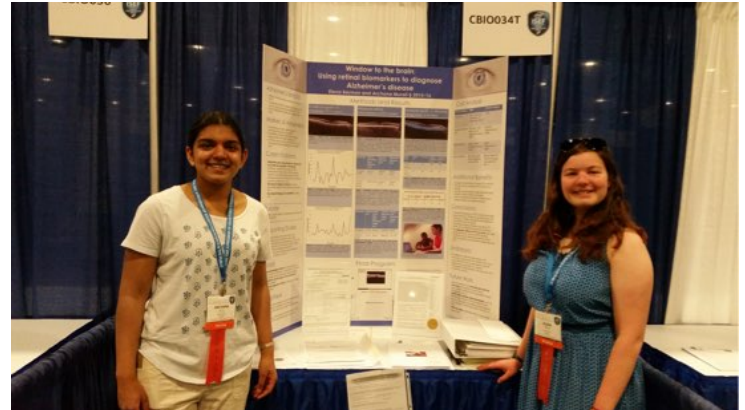
Intel ISEF 2016 Special Awards

ALCOA FOUNDATION – Pujan Patel, Mayo High School, Rochester, “Sustainable Design in Transportation,” Second Award \$1,500.

AMERICAN SOCIETY FOR HORTICULTURE SCIENCE – Samantha Guldan, Cathedral High School, New Ulm, “Soil Amendment Optimization, Phase III: Nutrient Analysis of Biochar and Hydrophilic Polymer Enriched Soils in a Simulated Large-Scale Agriculture Environment,” First Award of \$1,000.

ARIZONA STATE UNIVERSITY – Pujan Patel, Mayo High School, Rochester, “Sustainable Design in Transportation,” and Claire Wentzlaff, Burnsville High School, “Change in Algae Growth Using Supplemental Carbon Dioxide,” Arizona State University Intel ISEF Scholarship.

Images from the Minnesota contingent at the 2016 Intel International Science and Engineering Fair



CHINA ASSOCIATION FOR SCIENCE AND TECHNOLOGY – Serena Liang, St Paul Central High School, “Inexpensive, Portable Glucose Monitor for Diabetics via a Cross-linked Sensing Fluid,” Award of \$1,200.

SIGMA Xi, THE SCIENTIFIC RESEARCH SOCIETY – Brennan Clark and Prashant Godishala, Breck High School, “Predicting a Cancerous Outcome: Creating a Novel Test for Assessing Risk of Human Papilloma Virus-Associated Oropharyngeal Cancer,” Second Life Science Award of \$1,000.

PROGRAM NEWS: 2016 Top 10 STEM Communicator Awards

Carlos A. Sanchez and Jiahao Liang: "Real-time Human Breath Analysis Designing an Ion Mobility-Mass Spectrometer for the Detection of Volatile Organic Compounds."

Darartu Gamada: "Identifying Gene Function in Antibody Mediated Kidney Rejection."

Elena Berman and Archana Murali: "Window to the Brain: Diagnosing Alzheimer's Disease Using Retinal Biomarkers."

Emelia Topp-Johnson: "Behind the Kernels III: An Evaluation of Fungal Endophytes of Maize and their Hypothesized Mitigation of Temperature."

Isabella Jennings and Cole Maxwell: "Biomolecular Modeling, Simulation, and Design of a Bivalent CB2-CCR5 Ligand for the Potential Treatment of HIV/AIDS in the Brain."

Madeline McCue and Evelyn McChesney: "Engineering a Broad-Spectrum Antibacterial Probiotic via Inclusion of Antimicrobial Peptide-encoding DNA, Year Two."

Meghana Iyer: "Bioengineering the Lung: Investigating the Effects of a Lung Extracellular Matrix on the Growth and Differentiation of Stem Cells into Definitive Endoderm."

Prashant Godishala and Brennan Clark: "Predicting a Cancerous Outcome: Creating a Novel Test for Assessing Risk of Human Papilloma Virus-Associated Oropharyngeal Cancer."

Samuel Rex and Genevieve Weiler: "Printing an Organ: Developing a Protocol to Bioprint a Gastro-esophageal Junction."

Sarah Carlson and Siddarth Esvaraachi: "Cleaner Water: Investigating Homogentisate Chemotaxis Receptors in *Pseudomonas Putida* F1 for Bio-remediation of Aromatic Hydrocarbons, Year Two."

2016 Honorable Mention

Alexander Guzman and Cassidy Yueh: "Modeling Energy Demand Compared to Methane Gas Production from Anaerobically Digested *Oreochromis Aureus* Waste in Aquaponics Systems."

Alma Jorgenson: "Clean Greens: Microbial Safety of Deep Winter Greens."

Fiona Chow: "All About Those Blades."

Harini Kethar: "Bioengineered RGS5 Induced Adenoviral Drug Delivery and Smooth Muscle Cell Differentiation to Suppress Cardiac Disease Vasoconstrictor Remodeling."

Moira Southern and Ryan Etwiler: "Programming a Socially Assistive Humanoid NAO Robot to Deliver Physical Therapy to Children with Down Syndrome."

Preethi Kaliappan: "Determining the Most Effective Metropolitan Roof Type to Reduce the Urban Heat Island Effect and Overall City Atmosphere Heating."

Nick Schatz: "A Novel Stylometric Solution to the Problem of Many Potential Authors"

Serena Jing: "Inexpensive, Portable Glucose Monitor for Diabetics via a Crosslinked Sensing Fluid."

Smita Bhoopatiraju: "Phonological and Semantic Features in Four- and Six-Year-Olds' Foreign Word Learning."

Winners will be featured in the upcoming 2016 Minnesota Academy of Science *Journal of Student Research*. Find three of the 2015 STEM award-winning papers at www.mnmas.org/about-journal-student-research.

To learn more: kmnewell@mnmas.org

Girl Power: Teens Talk About Their Science Interests



The Minnesota Academy of Science programs enable us to get a glimpse at some of our future STEM specialists — a strongly needed pool for academia and industry. We talked with a few high school teenage girls after their participation in the 2016 Regional High School Science Bowl.

Q: *Did you grow up with a particular interest in math/science?*

Atte: From a young age both my parents encouraged me to get involved in science-based activities. I practically lived in the Science Museum on weekends and during the week I participated in Mad Science club. Over the summer I spent my

time watching everything from Magic School Bus to Popular Mechanics.

Heidi: I have grown up with science and math all around me. My parents took me to Science Museums, camping, interesting and educational vacations. My dad is an engineer, so he loves showing me and my sister cool toys and experiments. In 6th grade I participated in the Minnesota State Science Fair. It was enjoyable, but I decided to try something different the next year. Through my dad's work we learned about the Science Bowl. I decided to get a team together in 8th grade. We have been competing for four years now and our team changes every year.

Marisa: Growing up, I was relatively skilled at math and science, but I was not able to do advanced work in these subjects until I came to St. John's Preparatory School. In sixth grade we took advantage of the biodiversity of the St. John's University campus with hands-on experiences, such as collecting plant and water specimens. My older brother was a sophomore in high school and was a star student in math and physics. I began to develop a sort of friendly competition with him, and I started trying to surpass the standards he set for me. I took advantage of advanced math and science courses, and my interest was further influenced by several teachers. I appreciated that my teachers taught the theory behind equations and emphasized the critical thinking skills necessary for math and science. Their influence led me to take competition exams, research math independently, study Earth science independently, attend a STEM camp, and counsel a science camp. When I learned about Science Bowl, I became excited to compete.

Q: *What answer(s) are you most proud of from the Science Bowl?*

Atte: A few of the biology questions I answered. I am impressed how much I was able to recall from my biology class three years ago.

Marisa: An answer about fiber optics. I remembered learning about fiber optics in my International Baccalaureate Physics class last year (which is taught by Mr. Miller, my Science Bowl coach). I correctly buzzed in with the answer. It was fun to see the look of approval on Mr. Miller's face when I gave the correct answer.

Heidi: My favorite questions to answer are about Astronomy, Earth Science, and Energy. I enjoy learning how our universe works, how this planet works, and the different ways humans can use energy on Earth. I took a few chances at the Bowl and got four questions right in which I buzzed in before the question was finished. This was a risky choice, since if I had gotten the answer wrong, my team would have lost points.

I also enjoyed meeting a team that was made up of all freshman. It reminded me of when my team was all freshman at our first high school competition. It was a daunting year, but we were even more excited to compete the next year after we had learned even more. I also enjoyed getting a question right about a term we learned a few weeks earlier in AP Chemistry. It is my teacher's favorite term, and he teaches it enthusiastically. It was fun to go back and tell my teacher we were able to get some answers correct because of him.

Q: *How do you gel with teammates?*

Atte: We work well as a team. The majority of us have been together since ninth grade. We also know each other outside of Science Bowl, from being on the same sports teams and in a lot of the same classes.

Heidi: When we first started working together as a team, we began learning who knew what types of questions. Everyone has a subject they are passionate about. After we learned that, it was easy to know who to look to if you did not know the answer. The fact that we are all close friends perhaps gives us the greatest advantage. We trust each other and work well as a team.

Marisa: I think that working well together has been one of the strengths of my team. The other members of Team 1 are some of my best friends. Three of these teammates are on the Knowledge Bowl team with which I have won the state Knowledge Bowl tournament. As a result, we are used to supporting each other in both competitive and noncompetitive environments. It took some time to learn which specific scientific subjects were strengths for each team member.



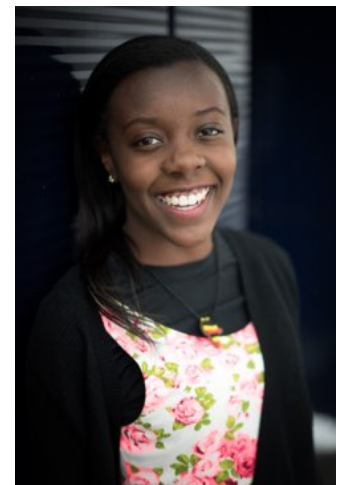
Personal Histories

Marisa Gaetz (above, middle): Through her attendance at St. John's Prep she was able to take college courses at affiliated St. John's University: Calculus I and II, Linear Algebra, Differential Equations, Topology, non-Euclidean Geometry, Number Theory. She helped coordinate the St. John's Prep team for the 2016 Science Bowl after learning about it through her science strengths in the state Knowledge Bowl. At the Science Bowl she particularly enjoyed answering questions on Earth Science and Astronomy. She likes to fill her spare time with soccer, softball, jazz band, and a ping pong club that she started. Her dream since

middle school has been to attend MIT -- she has been accepted there for next fall in an 'early action' decision. She intends to major in mathematics and get a major or minor in physics.

Heidi Krauss (opening image p. 12, far left): She has aspirations of a double major in Theater and Geology, with a particular interest in Planetary Geology. She loves volcanoes and astronomy. On a recent visit to the University of Minnesota Duluth, she met a student who was getting his Doctorate in Planetary Geology. "He talked to me about how he was figuring out how the volcanoes on Venus were formed. This sounded just like what I want to do with my life. My dream school right now is the University of Minnesota Duluth." She was the Snow Queen in her school's winter play of "The Snow Queen," and directed the spring one-act play. She plays the trombone in two bands and volunteers when she can.

Ate Kadoma (right): She is from Math and Science Academy, where she has competed in Science Bowl for five years, and loves answering questions about Earth Science and Chemistry. She also has taken courses at the



University of Minnesota, where she was enrolled as a full-time PSEO student. In her previous semester there she made the dean's list for the College of Continuing Education. All the classes she is taking there are STEM classes that will go towards a degree in Materials Engineering.

We Need Donors and Corporate Sponsors

Raise the visibility of your company and sponsor the Minnesota Academy of Science. Join us to recognize, promote and influence excellence in science.

Help support science by supporting the Minnesota Academy of Science. There are many opportunities to help our small nonprofit organization. Sponsorship options range from \$1,000 to \$100,000.

Sponsorship donations contribute to offsetting the costs for Minnesota State Science & Engineering Fair, Science Bowl, Winchell Undergraduate Research Symposium, and so much more — all of which are underfunded. Co-sponsors also are needed for Science Salon by providing a meeting venue, tour, speaker, and refreshments for participants.

Sponsors are recognized in a variety of ways through logo listings and sponsor website links on the MAS website, in this online newsletter, bi-weekly emails to 10,000 professionals across the state, collateral marketing materials, and at our culminating program activities.

Contact Celia Waldock, executive director, celiawaldock@mnmas.org with questions or to sponsor a program.

Science Resources

Have you visited the great collection of science-related links on our website lately? Go to mnmas.org/resource-links for:

- Resources for Professional Scientists and Researchers
- Resources for Educators
- Resources for Students and Parents
- General Resources

Newsletter Production Team

Celia Waldock, Editor-in-Chief

Mikki Morrissette, Communications Specialist

We are extending our communications coverage in 2016 to strengthen our networking, mentoring and funding capabilities as a statewide scientific community. Stay connected with this newsletter and the bi-weekly news as well as the MNMAS Facebook and Twitter accounts.

970 Raymond Avenue ■ Suite 103
St. Paul, MN 55114

Phone: 651-917-3994 ■ Fax: 651-917-3978
contact@mnmas.org ■ www.mnmas.org

