**Massachusetts Science & Engineering Fair announces winners, state’s top HS students**

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**Cambridge, MA,** **May 11, 2023—A study on the durability of environmentally friendly drinking straws and a project on improving the running speed and stability for a bi-pedal robot were the big winners** announced at the **Massachusetts Science & Engineering Fair** awards ceremony held May 9. More than $35,000 in awards and more than $250,000 in scholarships were given out to recognize top projects.

For the fair, **300 high school students from 86 schools** across the Commonwealth converged at MIT on May 5 and shared the science and technology projects they’ve developed over the last six months or more. These students, representing the best of Massachusetts’ science and engineering high school talent spent the day presenting to almost **350 volunteer judges, drawn from industry and academia**, sharing projects that span a wide variety of disciplines from biology to environmental sciences to engineering and computer science.

Sierra Kelch, a 9th grader from Holden, MA and a student at Wachusett Regional High won the Sanofi Grand Prize, the top award of $10,000 for her project, Sip Sustainably: The Rheology and Durability of Single-Use Environmentally Friendly Alternatives for Plastic Straws. To honor the support of her school, their science department received a $7,500 grant and her teacher, Eric Chandonnet, received a $2,500 grant for resources or professional development. Kelch also won a Harvard Summer School Secondary School scholarship.

Kelch’s project was inspired by a family trip to California where plastic straws are banned. “What is a plastic straw alternative that is durable but breaks down in the environment but not in your drink?” she said. “The data revealed that sugar cane and agave straws are the most durable plastic straw alternatives,” said Kelch. “They are very durable. They didn’t absorb much water and didn’t break down much while they were being soaked. Sugar cane and agave straws are also compostable and they’re made from the byproduct of sugar cane and agave plants so they’re very sustainable.”

“Sierra’s winning project shows a solid understanding and practice of the scientific process,” said Helen Rosenfeld, executive director of the Massachusetts Science & Engineering Fair. “The goal of the fair is to encourage curiosity and sharpen students’ critical thinking skills so they can better analyze and understand the world around them, whatever field they pursue. Thousands of students are involved, starting with local high school fairs and progressing to our state fair. Each student, not just the winners, benefits from the process of preparing their projects. The fair also encourages students to pursue careers in science and engineering.”

Arielsie Li, an 11th grader from Woburn, MA, and a student at Phillips Academy in Andover won the MathWorks First Place Award, an award of $7,500 for her project An Under-Actuated Fast-Running Bipedal Lizard Robot With Optimized Lateral Bending.

“Bipedal robots have a lot of potential applications, specifically because of their human likeness,“ Li said. “But if you run on only two legs, it’s going to be less stable than if you have wheels. I thought about taking inspiration from a bipedal lizard that has a special three-part body structure. By bending its body back and forth, it allows the lizard to counter the reaction forces and therefore keep its balance.”

“We’re very thankful for the many judges and others who volunteer their time to evaluate and advise the students,” said Rosenfeld. “They take time from their corporate, industry and academic jobs to share their skills with these students. And as a not-for-profit organization we couldn’t put these academic programs together without the help of our sponsors large and small, including Amazon, Cabot Corporation, Sanofi, ADI Foundation, National Grid, MathWorks and Hologic.”

Projects this year included using machine learning to reverse compulsive habits, looking at a significantly more degradable bioplastic from seaweed, using AI (artificial intelligence) to pick up suicidal intentions on social media, analyzing an enzyme’s ability to breakdown PET plastic, studying the best placement of four different types of wind turbines, and studying the drug release rate of polymer-based nanoparticles to find a drug delivery method that won’t harm healthy cells.

The Massachusetts Science & Engineering Fair develops future thought leaders through experiences in science and engineering practices using well-proven programs and novel approaches that empower students and educators to learn in and beyond the classroom. MSEF, a 501c3 nonprofit organization, was founded in 1949 by the American Academy of Arts & Sciences, MIT professors, and a group of pioneering K-12 science educators. MSEF sees a future where every student is empowered through learning in science and engineering practices.

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The Complete list of winners as well as photos and other resources is available through: <https://scifair.com/news-media-resources>

**Special Awards included:**

National Grid Engineering Excellence Award

MITRE Engenuity Resilience through Innovation Award

Eversource Sustainability Award

Fish and Richardson Patent Award

Massachusetts Life Science Center Trailblazer Award for innovation in life sciences

ALKU Foundation for impact on community or individual social-emotional well-being

Alnylam Award for a project that shows innovation in diagnosis and/or treatment of genetic diseases

3DEO Award for a project that displays unique learning from an elegant use of common materials

Massachusetts Chemistry & Technology Alliance (MCTA) Awards

Hologic Award for a project that focuses on women’s health and aligns with Hologic’s dedication of improving the health and well-being of their patients

National Geographic Society: That’s Geography! Cultivating Empathy for the Earth Award

Regeneron Biomedical Sciences Award

Microbiology Society Award

American Society of Safety Professionals

Pauline J. LaMarche Award

Eisenstadt Award

**Scholarships:** Harvard Summer Secondary School Program Scholarships, Merrimack College Scholarship, National Youth Science Camp Award, UMASS Amherst Scholarship, Wentworth Impact Lab, Northeastern University Scholarship, Wentworth Institute of Technology Scholarship, Worcester Polytechnic Institute Scholarship

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