

Maximillian Kopp Wins Prestigious U.S. Navy Environmental Science Awards Aimed at Deep Space Missions

Germantown Academy junior awarded by U.S. Navy for breakthrough ink-printed sensor aimed at improving spacecraft safety and structural monitoring.

BLUE BELL, PA, UNITED STATES, April 1, 2025 /EINPresswire.com/ -- Maximillian Kopp, a junior at Germantown Academy and a rising star in science and innovation, has been honored with the United States Navy Environmental Science Award at the 2025 Montgomery County Science and Research Competition for his pioneering project on printable sensor technology designed to enhance spacecraft safety during deep space exploration.

His project, titled “Inked Printable Sensors for Real-Time Structural Sensing in Deep Space Missions,” was recognized by the Office of Naval Research (ONR) for its originality, scientific rigor, and potential real-world impact. Kopp received both the Naval Science Award, signed by Rear Admiral Kurt J. Rothenhaus, and the Excellence in Student Science Research Award, reflecting the project’s environmental relevance and space applications.

Max’s journey into deep space technology began with a news headline: in June 2024, two Russian cosmonauts, Sergey Prokopyev and Dmitry Petelin, were stranded aboard the ISS after a suspected micrometeoroid strike damaged their Soyuz spacecraft. That crisis planted a question in Max’s mind: What if spacecraft could monitor themselves and detect structural damage in real-time—before it’s too late?

This became the catalyst for his project, which integrates polarized light-based sensing and nanomaterials into an ultra-lightweight, ink-printed platform. His technology uses directionally



Maximillian Kopp presents his award-winning project on inkjet-printed, deployable ultrasonic sensors for real-time structural monitoring in deep space missions.

sensitive inks embedded with 2D materials to detect microscopic deformations and stress patterns across curved or rigid aerospace surfaces.

Driven by that idea, Max spent months designing and testing a new type of sensor that could be printed directly onto spacecraft surfaces. His system uses nanomaterials, including to detect tiny cracks, fatigue, and environmental stress in materials. These sensors can be printed using ink-like solutions, making them lightweight and scalable for large aerospace structures. Unlike traditional sensors, which are bulky and require extensive wiring, Max's printed sensors are paper-thin and flexible, ideal for the extreme conditions of space travel.

"It is evident that you invested a tremendous amount of time, effort, and passion into your work, and the results are nothing short of outstanding," Rear Admiral Rothenhaus wrote in his official recognition letter. "You have a bright future ahead in the world of science."

Rear Admiral Rothenhaus, Chief of Naval Research, lauded Max's work in an official letter, writing: "Your project stood out for its innovative approach, meticulous execution, and insightful findings. It is students like you who inspire us all and remind us of the incredible potential within the younger generation." Max's award includes a custom Navy medallion, a certificate from the Office of Naval Research, and an invitation to continue engaging with the Navy's STEM outreach and innovation initiatives.



Certificate awarded to Maximillian Kopp by the Office of Naval Research for his Environmental Science project at the MCSRC Science Fair.



The official medallion awarded by the Office of Naval Research to Max Kopp for outstanding achievement in environmental science and innovation.

Max currently has two U.S. patents pending and is in the process of filing a non-provisional patent for this latest invention. His research also serves as CEO and founder for VitaSense, his emerging venture focused on advanced sensing technologies for biomedical applications.

This recognition from the U.S. Navy adds to Max's growing list of accolades in national and international science competitions and further solidifies his standing as a young innovator shaping the future of space technology and environmental sensing.

About the Office of Naval Research (ONR)

The ONR sponsors scientific research to enhance naval power and national security, while also supporting STEM education programs that foster the next generation of innovators.

Media Contact:

Max Kopp

www.maxkopptech.com

maxkopp@maxkopptech.com

Max Kopp

MaxKoppTech

+1 267-888-7526

[email us here](#)

Visit us on social media:

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