

第 18 回 JAT 新人翻訳者コンテスト 英日部門課題

本文の青く色を変えた部分のみを翻訳してください（全 429 ワード）。

人名は訳出せず、スペルのまま残してください（例：Alejandra Collopy）。指定部分以外を訳した応募作は失格とします。

Showcasing Women in STEM at Commerce's NIST

March 8, 2021

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The U.S. Department of Commerce's National Institute of Standards and Technology (NIST) is the Nation's leading agency working with industry and science to advance innovation, enhance economic security and improve quality of life. And NIST is home to many women across the fields of science, engineering, and math (STEM) who make a daily impact on the social and economic conditions of Americans and people around the world.

Some examples of the jobs held by women at NIST and the important work they are doing includes:

- Engineers who have created “phantoms” that help ensure accurate breast MRIs.
- Engineers who are studying the effects of Hurricane Maria in Puerto Rico with the goal of improving community resilience in the face of natural disasters.
- Researchers are coming up with ways to retrieve data from damaged mobile phones.
- Researchers who are creating standard reference materials that help ensure nutrition

labels are accurate.

- Scientists who are lending their expertise, looking at issues around air quality in classrooms and how to improve COVID-19 testing.

In honor of Women's History Month and International Women's Day, below are a few stories showcasing the important work of just a few of the women in STEM fields at NIST who have enthusiasm for their work, lend their expertise to a broad array of projects and are making a difference in their fields.

ERIN LEGACKI, Reproductive Physiologist/Biologist, Material Measurement Laboratory's Hollings Marine Laboratory



Photo of Erin Legacki (Credit: NIST)

A professor once told NIST postdoctoral researcher Erin Legacki, "You will never amount to anything, looking at your grades. The only way you'll work with animals is in an animal shelter."

She got a new mentor.

Over the course of her career, Erin has had the chance to study horses, hyenas, whales, and now salmon in the field of endocrinology, the study of hormones. At NIST, she is working with samples of mucus from the U.S. Department of Agriculture's stock of North American Atlantic salmon to help the aquaculture industry and conservationists understand and better measure the species' fertility.

Her message to aspiring scientists is simply to persevere.

Erin goes by the solid mantra that everyone she works with can teach her something. And thanks to her ability to overlook her first mentor's words, Erin has marched onward, pursued

her own path, and has become an incredible asset to the NIST team in marine research.

ALEJANDRA COLLOPY Physicist, Physical Measurement Laboratory

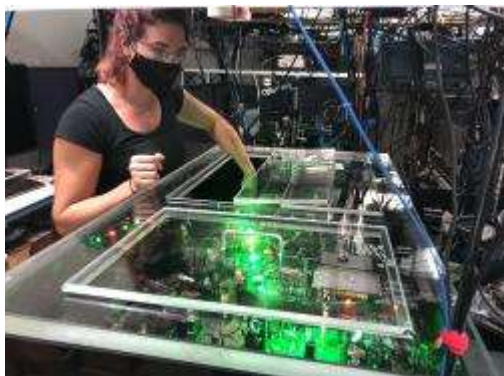


Photo of Alejandra Collopy (Credit: NIST)

NIST postdoctoral researcher and physicist Alejandra Collopy is part of a team making strides in understanding the world of atoms and molecules, a world that operates by the rules of quantum physics. With their knowledge of quantum physics, scientists have been able to invent the technologies that make smartphones, computers, the internet and so many other things possible in today's economy and society. And the discoveries and applications are continuing.

Most recently, Alejandra and her team have been creating, trapping, and studying charged calcium hydride molecules in a technique called quantum logic spectroscopy. This work may enable even better measurements of the fundamental constants of nature, which could increase understanding of quantum physics and offer new insights into the universe.

While trapping atomic ions is a widespread practice these days in science laboratories, doing the same for molecular ions is still relatively uncharted territory. This sense of discovery charges up her team for more research every day.

Alejandra always desired to know how things work and obtained a degree in physics from Stanford University. She then pursued graduate studies on neutral molecules at the Joint Institute of the University of Colorado and NIST (JILA). Today she has a decade's worth of background in molecules (neutral and charged) and adds great value to her research at NIST.

Alejandra now works with a group of NIST researchers on the other side of quantum studies—

quantum computing. Her work is improving the building blocks to perform reliable and useful quantum computations that will produce beneficial applications we can't even imagine today.

STEPHANIE MOFFITT, Materials Research Engineer, Engineering Laboratory



Photo of Stephanie Moffitt (Credit: NIST)

Harnessing the power of the sun only lasts for so long with solar panels before they break down. Armed with accelerated aging equipment and a longstanding passion for science, NIST postdoctoral researcher and Materials Research Engineer Stephanie Moffitt is working to find out why.

With our own version of a time machine, Stephanie exposes solar panel samples to humidity, ultraviolet light, heat, and electrical stress so that she can study what would happen to these panels if she left them outside for decades. With data in hand, she analyzes the chemical properties in the samples at different stages of aging, searching for the causes of cracks and damage to the electrical components within.

Stephanie's interest in solar panel research didn't come until she reached higher education, but her love for science started long before that.

In the third grade, Stephanie's class toured IBM, her first exposure to the world of liquid nitrogen and superconductors. What followed (with her parents' encouragement) was a childhood full of experimentation, including one of her favorites: mixing acids and bases to understand the volcano effect seen with baking soda and vinegar.

Stephanie also frequented her grandfather's airfield for recreational planes with her dad, who taught her to fly and maintain the planes. Often surrounded by tools and machinery, she learned to be careful around equipment, but still be confident in her ability to operate it. That careful confidence still shines today and helps Stephanie maneuver around her lab at NIST with ease.

But the confidence doesn't stop in the lab. Stephanie uses it to serve as the bridge between academia and industry. It's the reason she wanted to join NIST in the first place, and a role that she takes pride in. She collaborates with professors and companies alike to transfer her knowledge about solar panels, growing and learning in the process.

CALLIE HIGGINS Materials Research Engineer, Material Measurement Laboratory

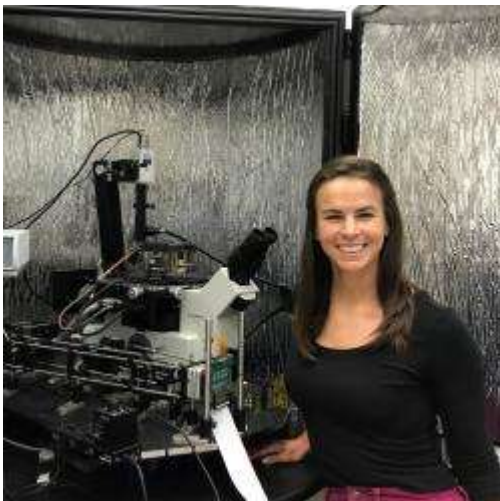


Photo of Callie Higgins (Credit: NIST)

Materials Research Engineer Callie Higgins, who started at NIST as a postdoctoral fellow and is now a full-time researcher, recognized NIST's important, unique role as the bridge between fundamental research and industry and knew she had found her dream career.

At NIST, Callie and her team are working with leaders across the additive manufacturing industry to address some core questions about photopolymerization, which uses light to create useful chemical reactions.

Her background in physics and optics at University of San Diego and then the University of Colorado Boulder put her squarely onto the photopolymer additive manufacturing path, where she learned how to manipulate materials with light to produce structures such as

artificial cartilage and bone.

Now, Callie's work at NIST in vat photopolymerization uses light to solidify a liquid resin layer by layer into a 3D object. This is similar to the technique used by dentists who also use ultraviolet light to harden dental materials, such as sealants, onto your tooth.

Callie and fellow NIST researchers are developing novel tools to bring this transformative technology to mainstream manufacturing, which has applications in fields ranging from regenerative medicine to deep-space exploration.

Her extensive expertise in additive manufacturing systems and demonstrated leadership working at the junction between academia, industry, and government makes her a critical asset to the NIST team.

NIST was founded in 1901 and is celebrating 120 years of service to the American people. Learn more about the services they provided at their founding and how they have evolved over the years.

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