Artist partners with physics lab, water district, cop shop

Olson stitches beads onto a piece that is part of a group of textiles representing the Standard Model in physics. (Nancy Stone / Chicago Tribune)

By Barbara Brotman,Chicago Tribune*contact the reporter*

Scientific ResearchPhysicsChicago SuburbsOak ParkHiggs Boson SearchColumbia College ChicagoCosmos (tv program)

A book titled "Understanding the Universe: From Quarks to the Cosmos" was on the work table in artist Lindsay Olson's home studio. A chart headed "names and characteristics of various subatomic particles" was pinned to the wall.

They may be unusual art supplies.

But Olson is an unusual artist.

She has crafted a unique niche. In 2010 she arranged to be a visiting artist with the Oak Park Police Department, going on ride-alongs and talking to officers to create works that explored the experience of doing police work.

In June she finished a stint as a visiting artist at the Metropolitan Water Reclamation District's Stickney plant, where she spent 18 months learning about municipal wastewater treatment and making textile artworks addressing everything from microbiology to plant hydrology.

And last month she was made the first artist-in-residence at Fermi National Accelerator Laboratory, the internationally known particle accelerator in Batavia.

She has already begun her first project, a series of textiles based on the Standard Model of particle physics. She will spend the next year at Fermilab, meeting with scientists, attending lectures and making artworks.

Olson's art will give physics research new exposure and invite new intellectual and cultural connections, said Georgia Schwender, curator of the Fermilab Art Gallery.

In all these projects, Olson, who lives in Oak Park and teaches textiles at Columbia College Chicago, said she is using art to explore and explain processes, from police work to the creation of the cosmos, that are crucial to life but usually unseen by outsiders.

"In our culture, (we) live along the surface and do our everyday lives and aren't really conscious of all the science and technology behind it," she said.

She chose fabrics and embroidery as her media for the wastewater and physics projects. The textiles' everyday familiarity, she thought, could help draw people into subjects that might be intimidating or off-putting.

Schwender had for years hoped to start an artist-in-residence program at Fermilab.

The gallery has occasionally hosted shows dealing with physics, like one this year of sculptures by Edward Tufte. But it has never hosted an artist expressly assigned to create works about research at Fermilab.

And an artistic residency, Schwender said, would be a tribute to Fermilab's history.

"Our founding director, Robert Wilson, was a physicist but also an artist," she said. "Fermilab has always encouraged art and culture."

So after hearing Olson speak about her work at the Oak Park Police Department, Schwender invited her to start Fermilab's pilot artist-in-residence program.

The project is supported with a small stipend from the Fermi Research Alliance, a partnership of Universities Research Association and the University of Chicago.

Olson was somewhat intimidated by the physics.

"I'm an artist," she said. "I have spent a lifetime trying to avoid math and science."

But her project with the Metropolitan Water Reclamation District, where she peered through microscopes at bacteria and learned about wastewater treatment from engineers and microbiologists, had shown her that she could learn about science through her sketchbook and her art. And "I don't have to know everything in physics," she said. "I just have to know enough."

In fact, she has learned a great deal, said Don Lincoln, the Fermilab physicist who is her scientific adviser and the author of "Understanding the Universe."

"I was a little nervous that she could maybe not stick true to the science or not be able to convey it properly," said Lincoln, who was part of the teams of scientists that discovered the top quark and the Higgs boson.

"For some artists, the art trumps the reality. But as soon as I saw her first piece, I knew this was not the case."

In that piece, Olson embroidered letters representing the fundamental particles of physics. But a careful look reveals small H's in gray embroidery floss, just barely visible against the gray linen background.

"She had put in it a subtle representation of the recently discovered Higgs field," Lincoln said — the field that permeates the universe and that can be excited in a particle accelerator to yield the elusive Higgs boson.

The H's were everywhere but hard to see, he said, just as the Higgs field is everywhere but hard to detect.

"From then on, I was wowed," he said. "It was subtle. It was brilliant. I was totally floored."

Olson was equally admired at the Metropolitan Water Reclamation District.

"She's a very eager learner. She picked up quickly on things," said Richard Lanyon, retired executive director of the district, who was her chief guide to the world of wastewater.

She had become intrigued with wastewater treatment after spotting a Sidestream Elevated Pool Aeration station — a kind of engineered waterfall — while she and her husband were canoeing in the Cal-Sag Channel.

She had been painting impressionistic landscapes of Chicago's waterways. But she abandoned her romanticized view, began attending seminars on

wastewater treatment and started looking into ways she could use her art to tell that story.

"She set up a meeting to ask if she could be the artist-in-residence," said David St. Pierre, executive director of the MWRD. "I have to tell you, it's one experience I never anticipated in the wastewater industry."

The district did not make her an official artist-in-residence but supported her work and allowed her to spend time at its Stickney Water Reclamation Plant in Cicero, observing and talking to engineers and microbiologists about their work.

She was unpaid, but her work was supported in part by faculty grants from Columbia College.

She produced a series of textiles with titles like "Crawling Ciliates Aspidisca" and "Filamentous Bacteria 0914," and won the affection of the engineers and microbiologists whose work she had turned into art.

"It really was a morale boost for our employees," St. Pierre said. "We're all engineers, and just to have somebody in our presence that uses that part of the brain" was energizing.

Olson will spend the next year at Fermilab meeting with scientists, attending lectures and making artworks.

Her work will be exhibited in a show at the Fermilab Art Gallery during the fall of 2015 or winter of 2016. Some pieces will also be included in Art@CMS, an outreach initiative based at CERN in Switzerland that will be exhibited at Fermilab in February.

The onetime science-avoider now speaks fluidly about quarks, leptons and bosons. She is working on how to represent neutrinos, experimenting with a filmy piece of black fabric on which she has sewn an ethereal fringe of silver,

gold and bronze embroidery floss to represent the three different types of neutrinos.

And on a piece she was working on the other day, a symbolic timeline of the discoveries of the fundamental particles of physics, the letters representing neutrinos were angled to the left.