

## Beaded viruses and geology-inspired paintings show the art in science

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Holly Wichman found herself an empty-nester with a well-established research lab in 2000, so she used some of her new found time to pursue an artistic activity that paralleled her research. The virologist began making small beaded sculptures in the shapes of viruses that she studies in her lab. Wichman's beaded viruses along with artworks by two other scientists will be displayed at the American Association for the Advancement of Science Gallery starting 16 June.

"We are excited that AAAS can exhibit scientists from so many different disciplines who find art in their science," said Virginia Stern, director of the AAAS Art of Science and Technology program which was established in 1985 to showcase art about science, art by scientists, or art that employs a new or original technology or technique. The new exhibit runs until 5 September with a public reception Tuesday 17 June from 5:30-7:30 p.m.

Nearly 20 virus-inspired sculptures made of beads will be part of the exhibit, called "Crystal Structures: Viruses in Glass." The virus family Microviridae, which Wichman studies in her lab, inspired the work "Purple Haze," a sphere three-and-a-half inches wide made of purple bead clusters connected by delicate straw-like bugle beads.

Wichman's pieces in the AAAS exhibit will be shown with those by Bentley Fane, a professor at the University of Arizona. Fane began beading in 2006 when he came to Wichman's lab for a sabbatical. The two scientists study the same virus family, and Fane planned to spend



two months of his sabbatical learning new lab techniques. He ended up learning how to bead as well, and he strung together a series of virus structures—including one for herpes.

Wichman and Fane noticed how certain configurations are easier to bead, that they hold together more easily. The real-life viral counterparts also tend to be more durable and common in nature than the configurations that tend not to hold their shape when beaded. One of the stable beaded viruses, which took 1,560 beads and 70 feet of thread, is exceptionally strong. "You can grab it in your hand and squeeze it and it won't collapse," Fane said. In contrast, his beaded representations of virus structures that are fairly uncommon in nature, would collapse under pressure. "I really wondered if these shapes are inherently less stable and maybe that's why evolution has selected against them," Fane said.

The virologists use the exhibit to teach the public about viruses. "Some of our big health threats are viruses," said Wichman, citing HIV and bird flu as examples. "People are happy to talk to someone who can answer simple questions. It's an easy way to look at viruses and learn a little painlessly."

In addition to learning about viruses, visitors to the AAAS gallery will also get some impromptu geology lessons. Twenty-one paintings will be part of the exhibit "Earth Science Messages: Paintings on Wood" which will be shown simultaneously with Wichman and Fane's "Crystal Structures" exhibit.

Colorado-based geologist Susan Eriksson started doing art in the mid-1990s and recently began painting with acrylics on wood. As director of education and outreach at the research consortium UNAVCO, a National Science Foundation and NASA sponsored organization, Eriksson develops educational programming on modern geodesy, or changes in the shape of the Earth.



As an artist, Eriksson says that she strives to capture the essence and processes of the Earth, which she expresses in abstract paintings. In "Tectonics," for instance, five reddish orange panels reflect how pieces of continents come together. Just as her geology background informs her art, Eriksson's art can guide her geology. She combined painting with carving and burning processes to make the soft hued 66-by-60-inch "Mélange," an effort she says made her more inquisitive and thoughtful about her science.

The "Earth Science Messages" exhibit is prompted by the changes that occur to the Earth. "Every process that has happened on the earth leaves something behind: a fossil, a crystal, a bubble," Eriksson explained. Geologists take those remnants and interpret what happened to the Earth.

And in some of the artworks displayed at AAAS, Eriksson has taken geologists' interpretations of evidence of ancient climate changes and interpreted them in her paintings. For instance, she chose green as a predominant color in "Cambrian" to illustrate the period in which the diversity of life on Earth increased dramatically.

"Farallon" is a tribute to part of the EarthScope project, a series of seismic stations installed across the United States. "The seismic velocity data of the Farallon plate is so visual and most people don't know about this gigantic plate descending beneath this country," Eriksson said of the plate that contributed to the formation of the U.S. Rocky Mountains. "I spend a lot of time helping people learn about earthquakes and volcanoes and moving plates. It is just fun to have a blue and orange Farallon hanging on the wall for people to wonder about!"

Source: American Association for the Advancement of Science



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