LETTERS TO THE EDITOR

Letter to the Editor

Dear Colleagues,

Many thanks for a very interesting article, "How to Keep Your Secrets in a Post-Quantum World," published in the January 2020 issue of *Notices of the AMS*. This article describes ideas for "post-quantum cryptosystems that are not currently known to be breakable in polynomial time by a full-scale quantum computer." These are all great ideas, but readers who are not very familiar with this topic should be informed that already in the 1980s, researchers had developed quantum cryptography schemes—such as the 1984 Bennetts' and Brassard's Quantum Key Distribution scheme—which are not breakable even by a quantum computer. These are not just purely theoretical schemes: according to the Wikipedia page on quantum cryptography, several companies already manufacture such communication schemes, and they are actively used—in particular, for communications over hundreds of kilometers. Of course, this does not mean that the problem is fully solved: the existing quantum communication schemes have limitations, e.g., limitations on communication speed; from this viewpoint, it would be great to have faster alternative schemes, e.g., schemes described in the *Notices* article.

—Vladik Kreinovich and Luc Longpre
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Where does "mathematical making" fit in our community?

At the end of a fantastic semester of Illustrating Mathematics at the Institute for Computational and Experimental Research in Mathematics (ICERM), many of the participants gathered to discuss the future of what we see as a growing movement. Where can we publish scholarly articles about mathematical visualization if the theorems alone might not justify publication? How does the mathematical community value the creation of new ways to see and communicate mathematics? The extraordinary creativity sparked by our being brought together makes us confident that more mathematicians will delight in taking up this enterprise. Those of us who have signed the Mathematical Makers' Manifesto below urge the mathematical community to support efforts in the same way ICERM so generously supported us this fall.

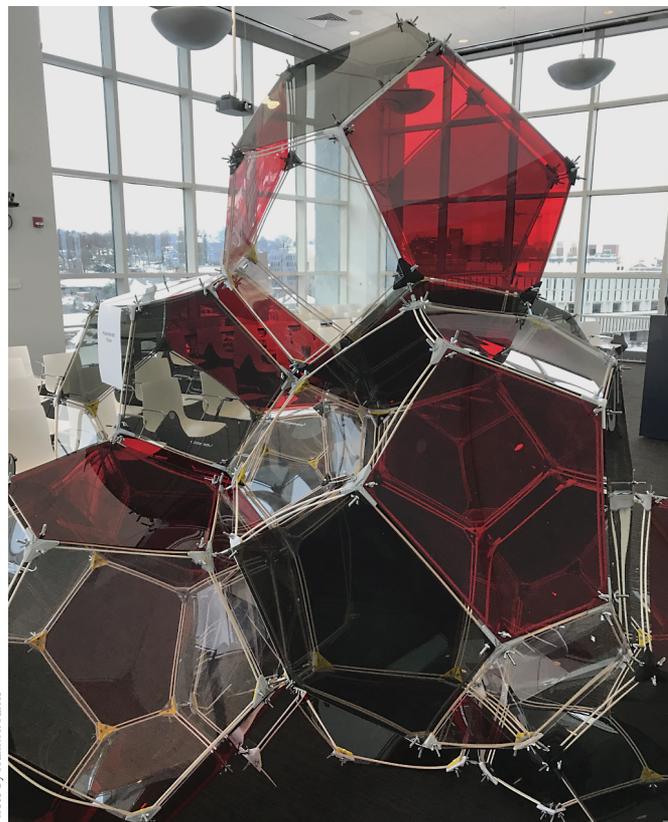*—Frank A. Farris*
Santa Clara University

Photo by Frank A. Farris

A human-scale model of the Weaire-Phelan foam. Mathematical installation by Glen Whitney.

*We invite readers to submit letters to the editor at notices-letters @ams.org.

Mathematical Makers' Manifesto

We are mathematical makers. We are makers because we make things, by which we might mean literal objects, such as sculptures, paintings, or fabrics, but our making includes creation of digital images, software, and even performance arts. We are mathematical makers because our creations require mathematical knowledge as a key ingredient. Why do we make these things? Our reasons are diverse, including education, outreach, and experimentation to investigate and create new mathematical understanding; we are also inspired to create works of art and useful crafts. We work to include mathematicians of many different backgrounds in our making, from beginning students to researchers in the farthest branches of mathematics. As the ultimate interdisciplinary subfield of mathematics, mathematical making deserves support from universities, museums, governments, and corporations around the world.

Signed by
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