

How to make **3-D printed** sculptures of **4-D things**

Speaker: **Henry Segerman**

Location: **The Hub Ballroom**

Date: **September 30, 2016**

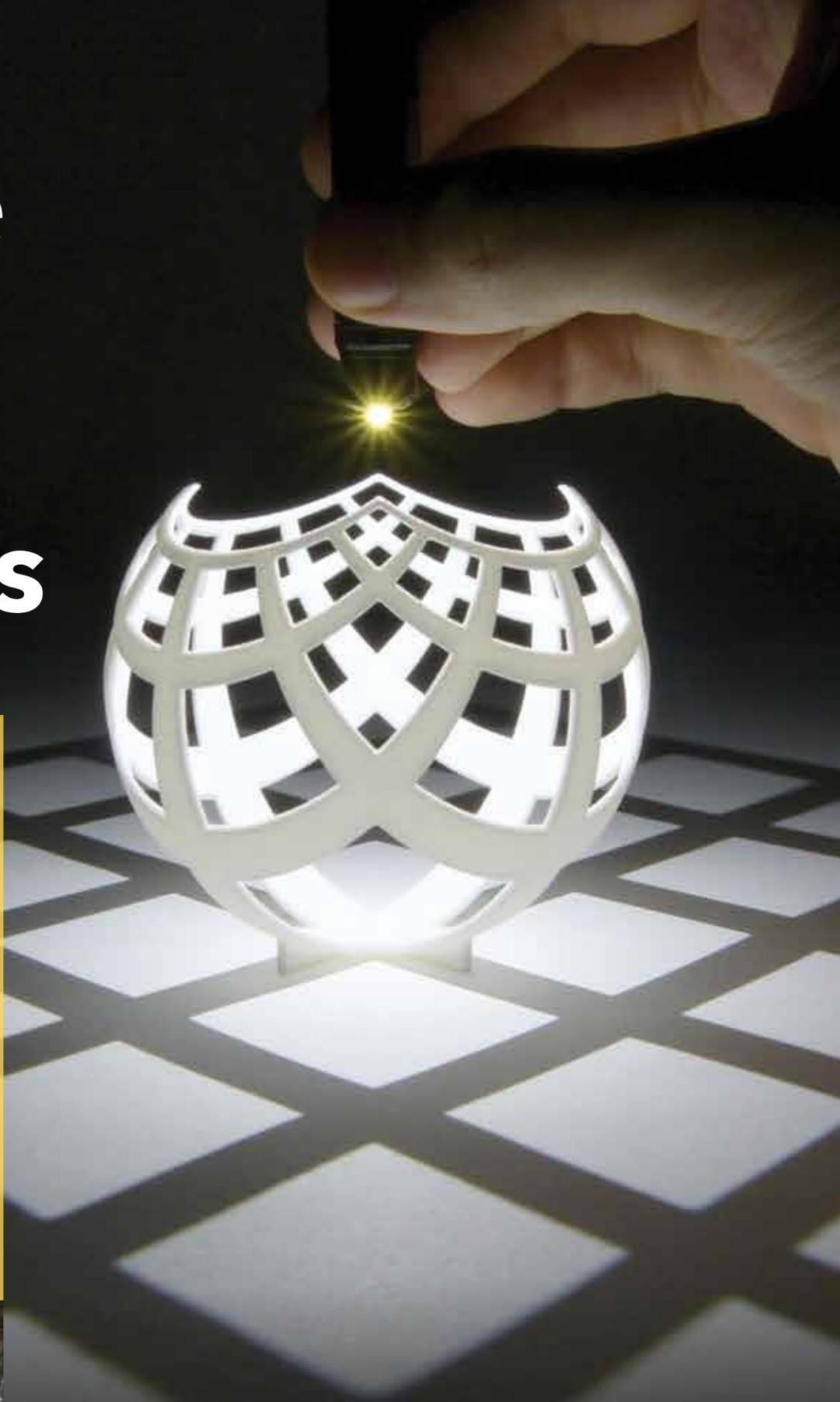
Time: **2-3 p.m. presentation**

3-4 p.m. book signing



Henry Segerman is a mathematician working mostly in three-dimensional geometry and topology, and a mathematical artist working mostly in 3-D printing. He is an assistant professor in the Department of Mathematics at Oklahoma State University.

This event is sponsored by the Department of Mathematical Sciences Colloquium, and the Topology, Arithmetic, and Dynamics Seminar.



Abstract

Our brains have evolved in a three-dimensional environment, and so we are very good at visualizing two- and three-dimensional objects. But what about four-dimensional objects? The best we can really do is to look at three-dimensional “shadows.” Just as a shadow of a three-dimensional object squishes it into the two-dimensional plane, we can squish a four-dimensional shape into three-dimensional space, where we can then make a sculpture of it. If the four-dimensional object isn’t too complicated and we choose a good way to squish it, then we can get a very good sense of what it is like. We will explore the sphere in four-dimensional space, the four-dimensional polytopes (which are the four-dimensional versions of the three-dimensional polyhedra), and various 3-D printed sculptures, puzzles, and virtual reality experiences that have come from thinking about these things. I talk about these topics and much more in my new book, *Visualizing Mathematics with 3-D Printing*.