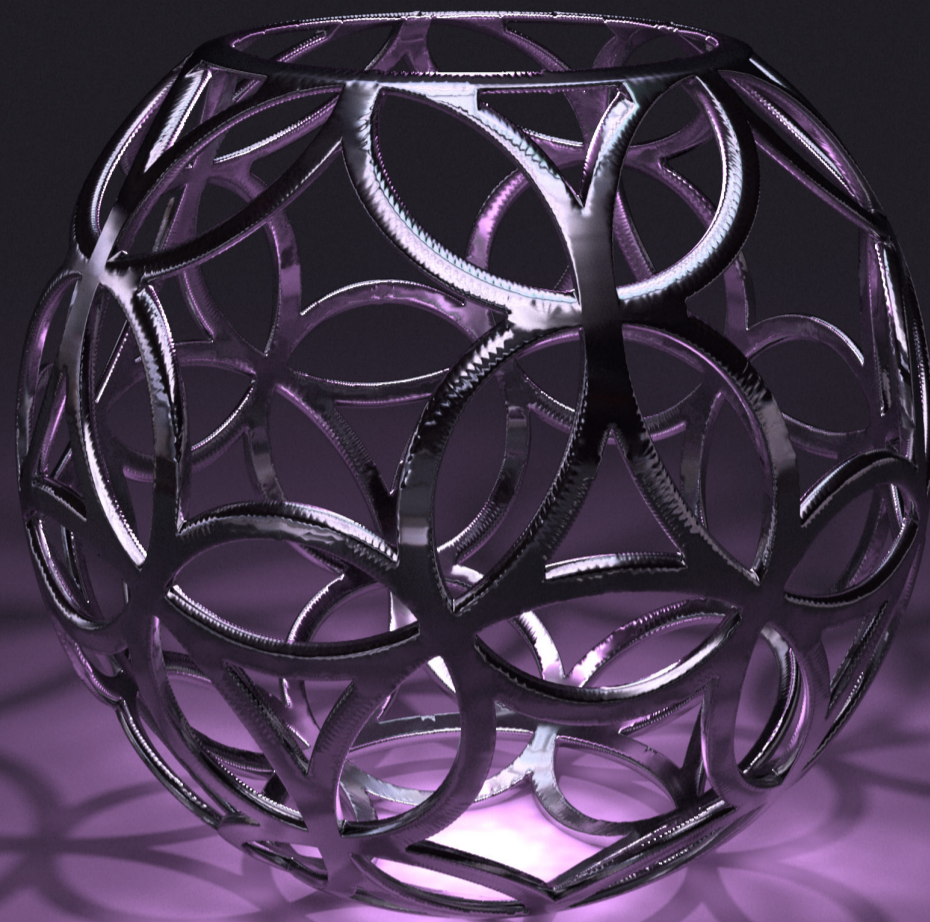


Northeast Organisation of Discrete Structures (NODES) Presents



3D Shadows: Casting light on the fourth dimension

Public Lecture

8 June 2017, 5pm

CG93, Durham University, DH1 3LE

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Abstract

Our brains have evolved in a three-dimensional environment, and so we are very good at visualising 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 3D 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 3D Printing'.



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