Modeling Twisted Tori in Art

For the 2016 Summer Games of XXXI Olympiad, Anthony Howe created a kinetic wind sculpture for the cauldron. This sculpture and the pieces appeared to swirl. Upon closer inspection the shape made by the movement could be viewed as a twisted torus. We model this shape using a mathematical structure called a Hopf Fibration, which can be visualized through the projection of a three-sphere, $S^3$, in four dimensions onto a two-sphere, $S^2$, such as the surface of a ball.